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POPULAR Computing WEEKLY

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Vol 3 No 41

Megagame for QL

IT has cow been announced that Sinclair Research has definitely acquired *Bandersnatch*, the Imagine 'megagame (See *PCW*, 27 September)

Sinclair hopes that *Bandersnatch* will be completed and available in the first quarter next year It is to be produced for the QL computer Sinclair also has options to buy further megagames as and when they are completed.

"The games are being developed by ex-Imagine staff, who have set up a new software house in Liverpool," said a Sinclair spokesman. "They are being paid a fee by Sinclair to complete the programs.

The staff working on *Bandersnatch* and further megagames include former directors Dave Lawson and Ian Hetherington, Eugene Evans, Tom Flannery, Michael Glover, Andrew Sinclair and three to four others.

"*Bandersnatch* is being completely rewritten, not just finished," said Dave Lawson. "This is partly because they are now to be released on the QL rather than the Spectrum and Commodore 64, and partly because we have learned a lot about this particular programming technique from developing it for the other micros"

One of the major features of Imagine's megagames was that they were to be released as Rom cartridges While the QL has facilities to use Rom cartridges, it is not yet known whether this is the format to be used or if the games will appear co microdrive.

Further megagames releases after *Bandersnatch* would probably include *Psyclapse*, which had also been partially developed when Imagine went into liquidation in July this year. "Originally at Imagine we were working on seven megagame titles," continued Dave Lawson. "I see no reason why we shouldn't continue with them all."

Sinclair has not yet decided on a price for *Bandersnatch* when it is published, but Imagine was hoping to sell its megagames for around £40. Royalties for *Bandersnatch* and further releases will go to Imagine s creditors via the official liquidators.

Hesware goes under



HESWARE, the American software company whose games are marketed in the UK by Thorn-EMI, has filed for liquidation.

Hesware has filed under Chapter 11, an American ruling which enables the company concerned to carry on trading It provides a means for the company to slim down cs operation, in the hope that it can eventually trade normally The company's affairs are conducted under the supervision of the Bankruptcy courts.

Thorn-EMI hopes to continue distribution of Hesware titles in this country 'It is very sad to hear that Hesware is in

continued on page 5 ▶

UK pirate sued by US Gold

US GOLD and Activision have jointly taken action against an individual in Dorset offering pirated software for sale by mail order

"He had produced a catalogue of software for sale — all American games, from companies such as Access, Atarisoft, Broderbund, Datasoft, Activision and Synapse,' said Geoffrey Heath, managing director of Activision.

Many of the programs were titles licensed by either Activision or US Gold. After the two companies threatened legal action, the man has since ceased production of the catalogue, destroyed the tapes and discs, and given a legal undertaking not to continue

"The people who go in for mass-production of copied programs make my blood boil,' said US Gold's Geoff Brown. "US Gold has to be seen to be extremely tough co copyright issues, although all our programs now either feature a protection system or a special high speed loader which makes them very difficult to break into"

US Gold has also recently prevented further production of Starzone's *Zaxxan*, which Geoff Brown says "outrightly plagiarised" its licensed version, *Zaxxon*.

US Gold served a writ against Starzone, which has now removed *Zaxxan* from the market, and paid US Gold substantial damages

POPULAR Computing WEEKLY

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)View

Whilst much of the computer press and such notable industry figures as Sir Clive Sinclair have been quick to condemn the MSX system as outdated and technically unexciting, little attention has been paid to what may, in the marketplace, be a more important problem. It is very expensive

The one machine you can actually buy at the moment — the Toshiba HX10, is retailing at £279 99, which is around £80 more expensive than what would appear to be its nearest competitor, the CBM 64

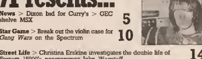
Nor is the Toshiba machine alone the Sanyo MSX machine, the MPC 100, is expected to retail at £299 95 and other evidence suggests that the general MSX machine price is going to be closer to £300 than £200

But there is another consideration — the price of software Activision has recently announced the release of a number of programs with versions available for Spectrum, Commodore, and MSX machines. Retail price for the MSX software is £11 99 compared with £9.99 for the Commodore version which few would pretend was noticeably inferior. This pricing policy reflects less on Activision than a general feeling amongst the major software companies that the market for MSX machine software will 'bear' a higher price.

The reason for this stems from the MSX companies belief that MSX is intended for a whole new market of 'general consumers' quite different from the 'traditional' computer market.

It is hard to see exactly why this new breed of 'general consumer' should pay so much for MSX 'security'. Could it be that the companies involved are hoping that merely possessing a household name like Sanyo or Sony or Toshiba will be enough?

)Presents...



)Futures...

Make your way through the Mad Maze on CBM 64 . . . take a look at the QL disassembler . . . .

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How to submit articles Articles which are submitted for publication should not be more than 2000 words long. The articles, and any accompanying programs, should be original It is breaking the law of copyright to copy programs out of other magazines and submit them here — so please do not be tempted **Accuracy** *Popular Computing Weekly* cannot accept any responsibility for any errors in programs we publish although we will always try our best to make sure programs work

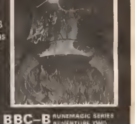
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It's a full house for PJP

PJP Computers has hit the jackpot on *The Times*'s Portfolio competition.

For the last four months, PJP has been offering a service on subscription for Portfolio card holders to have their numbers checked against each day's list on computer.

"Christopher Austin from Banstead was our first winner last week," said PJP's company secretary Melanie Phillips. "We have also now started the same number checking service for the *Daily Mirror*'s Who Dares Wins competition and Millionaire of the Month in the *Daily Express*."

Over all three competitions, PJP, better known for management database systems, now has almost 6000 subscribers.

Details from PJP Computer Services Ltd, 34-36 High Street, Barkingside, Essex.

US Gold

Continued from page 1

trouble, but we will certainly continue to support them over here for as long as possible," said John Forrest, general manager at Thorn-EMI Computer Software distributors.

Hesware also distributes three Llamasoft titles in the States — *Gridrunner*, *Matrix* and *Laser Zone* — and Llamasoft is now looking for an alternative distribution deal. "We have been approached by Activision, Quicksilva and Currah to take over US marketing, but no definite moves have yet been finalised," said Llamasoft's Hazel Minter.

GEC drops MSX plans

THE future of GEC's involvement in the home computer market now looks in doubt.

The company has shelved plans to launch an MSX computer in Britain indefinitely, and is uncertain as to whether it will continue marketing the Dragon 32 and 64 machines.

"Originally we planned to bring out the MSX computer this autumn," said Dennis Judd, marketing manager of GEC Radio and Television. "However, we were unable to obtain sufficient supplies, and as a result have shelved the whole project, and there is no guarantee we will pick it up again.

"We are currently taking a long hard look at home computers. While we are still selling what stocks we have of the Dragon machines, it is possible we may not continue marketing the Dragon when stocks have run out."

GEC funded Dragon Data to a large extent during its lifetime, and took over the marketing for the machines after Dragon Data went into liquidation. Dennis Judd affirmed that Dragon's demise had coloured the company's current attitude to the home computer market.

Latest Forsyth thriller on the screen

BEST selling author Frederick Forsyth will see his latest book *The Fourth Protocol* on a micro next spring.

Hutchinson Computer Publishing is currently working on an adventure game based on *The Fourth Protocol*, in liaison with Forsyth.

Bart Ullstein, of Hutchinson, said, "It seems logical to use storylines by our future and existing authors to translate to the computer. However, while the adventure is based on the book, it is not true to say that anyone who has read it will find the adventure easy."

The game will contain both graphics and sophisticated text input. The plot of the book concerns a Russian plan to disrupt a British General Election to ensure an extreme left-wing government. To further this end, the Russians plan to set off an 'accidental' limited nuclear explosion in the UK.

As the player, you must uncover the Russian plans and foil the attempt.

"The adventure should be available in April or May 1985," continued Bart. "It will definitely be released for the Spectrum, and probably for the Commodore 64 as well. We hope to sell it for around £10."

Frederick Forsyth's book, *The Fourth Protocol*, is available in hardback in the shops now, published by Hutchinson, priced at £9.95.

Sampler from Intec

INTEC Electronics of Shrewsbury has brought out a sampler interface with accompanying software for the Spectrum and 16K ZX81.

"With the package you can enter up to 12 sounds into the computer memory. You can then program it to play the sounds back in any order. The output can go to, for instance, a drum machine or synthesiser, and the data saved and loaded back into the micro," explained Intec's Robert Weston.

"We hope to produce a sampler for the QL soon, and we will also be bringing out an interface to connect the sampler with MIDI keyboards."

Intec's sampler interface costs £178.25 — the software packages are £9.95 each. Further details from Intec, 42 Old Coleham, Shrewsbury SY3 7BU.

Oric suppliers give support

AT a meeting of the Oric Suppliers committee, three major Oric suppliers have pledged their support for the company's future, emphasising Oric's success in the European market.

Representatives from Stackpole, Jermyn and Hitachi Electronic Components all attended the meeting, and Mike Squire of Jermyn said, "Certainly the main business for Oric would appear to be abroad, where the demand seems to be much higher for the products."

Acorn goes to the Middle East

ACORN has sent a representative to a British Trade Computer Mission in the Gulf States. While the other members of the party are promoting business computer and technology products, Acorn has its eye set on the educational sector.

Derek Lee (above) Acorn's Regional Manager for the Middle East, is promoting an Arabised version of the BBC micro, with an Arabic and European text processor and Arabic keyboard. Acorn is hoping to penetrate the Arabian educational market in the same way that it has in the UK.

Dixon's in take-over bid for Curry's

HIGH Street electrical retailer Dixon's has made a £180m bid to take over Currys.

The offer comes almost immediately after Currys announced its profits had dropped from just over £9m to £8.4m in the first half of this year. Chairman Stanley Kalms has said that he has 'had his eye on Currys for the past 30 years', but only started looking seriously at the chain six months ago.

Colin Stanford, Curry's group commercial director, said, "The offer came as a surprise to us, but it is definitely unacceptable. We are not selling."

Currys recently closed down its chain of Micro C business computer divisions in favour of expanding its home computer stocks. "Our sales in the home computer market are now up to ten times on last year," Colin Stanford continued. Dixon's is also a major home micro retailer, claiming around 10% of the total market.

Letters

Issue 4?

I have tried the example given in answer to Roberto Corrana's *Peek and Poke* anquiry in the September 20 issue that tells if you have a Spectrum Issue 3 or not.

When I entered *Print In* 16602 instead of getting 191 — as per Issue 3 — or 255 for an Issue 1 or 2, I get 63

Could I have the only Issue 4 in existence?

M Payne
5 Sassett Road
Coundon
Coventry

Does anyone else get 63?

Shipwrecked

I've been a wargamer for a number of years, and I've just bought a Sinclair Spectrum for this purpose

What I was wanting to know through your excellant magazine is, are there any people or firms that produce computerised wargame rules?

My interests are in a number of fields, but my main one is Modern Naval. I feel that such a product would speed up a game, and be more realistic

I hope one of your readers can help

D Wilson
34 Beech Park
Brandon
Durham
Co Durham

Rom bugs

If the bugs in the Spectrum *Rom* no longer interest you, then read no further. Quite simply, the bug concerned is that the temporary colours in a statement containing the *Str$* function are cleared by that function, thus: *Paper 7: Cls: Print Paper 5, Str$* 1234, prints 1234 on white paper not on cyan, as may be expected. The same is true if the colours are introduced as control characters (either by addition within the statement or by their incorporation in extended mode). The problem may be overcome by assigning a temporary string variable to the evaluated statement, and then printing in the normal way

Ian Logan has been kind enough to comment on this for me, and in essence, the problem arises because the programmers have used the general purpose routine *Chan-Flag 1615* to recalculate the flags associated with the required current channel details following the evaluation of the function, rather than working them out from scratch. This causes the temporary colour details to be lost

I do hope this is of interest and if it's already been described (it does seem to be the sort of bug that might have been expected to turn up sooner) then I apologise to the discoverer!

Vivian Stevens
Montague House
3 Andover Rd
Upavon
Wilts

QL news

Popular Computing Weekly (September 26) includes a letter from Alan Turnbull regarding an up-graded version of the Psion software for the Sinclair QL.

He is correct in stating that an up-dated version will be issued in due course, but your readers should note that it will be available to members of the *QLUB* only. It is in fact one of the key benefits of membership

The only non-*QLUB* members to automatically get updated software are the limited number of people still in possession of an initial *FB* version.

We regret any misunderstanding that may have arisen.

Bill Nichols
Sinclair Public Relations
Berkeley Square House
London W1

"Hello! PJP Computers? Do you do The Times Crossword too?"

Save it

I read with interest the article on graphics on the QL page of Issue 39. As I had had a Spectrum before buying a QL, I wondered whether it was possible to use UDG's on my new machine

R. Snowdon's program creating UDG's was excellent but he left out any commands to save or load these graphics. The following few lines remedy this problem.

```
595 IF KEYROW(4)&&1 THEN LO
596 IF KEYROW(3)&&8 THEN SA
615 AT 19,0: PRINT "S.   SAVE UDGS     L.   LOAD UDGS"
1060 DEFINE PROCEDURE SA
1070 INPUT #0; "File Name?",aa$
1080 SBYTES "mdv1_"&aa$,newbase,576
1090 Cls#0:RUN
1100 END DEFINE
1110 DEFINE PROCEDURE LO
1120 CLS#0
1130 INPUT#0;"File Name?",bb$
1140 LBYTES "mdv1_"&bb$,newbase
1150 Cls#0: RUN
1160 END DEFINE
```

I hope the Load and Save routines will be of use.

I Souter
55 Somerset Ave
Westcliff-on-Sea
Essex

Not happy

I am writing to say that Microvitec were less than happy with the PCW Show review on Page 14 of your 27th September issue which suggested that they had been negligent or irresponsible in having three tiger cubs on their stand to promote CUB colour monitors.

We feel that you should make clear to your reviewer — and your readers — that a licence would never have been granted for the tiger cubs to be present had not Microvitec complied with the strictest of requirements. The local Borough Council inspected the facilities on the stand and saw the cubs in the cage, as did the City of London's Senior Animal Health Inspector and a representative of the RSPCA. All of them were satisfied that the animals were happy, well-cared for and represented no danger to the public. The licence could not have been obtained without their approval.

I should also like to make it clear that they are not wild animals, but had been hand-reared personally by Sally Chipperfield, their owner. Assisted by two handlers, she was present throughout the show to make sure that the cubs were not distressed in any way. The air temperature was regularly monitored and the tigers were bottle fed on demand by Sally who would never have consented to the animals being abused in any way. The cubs played and slept and their behaviour was entirely normal for tigers of their age

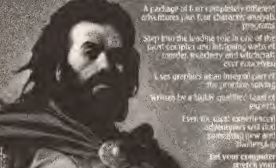
Tony Fall, Microvitec's Marketing Manager, has also pointed out to me that while the cubs were taking part in photographic sessions earlier in the year for Microvitec's new brochure, Sally told him that the cubs loved being the centre of attention. Mr Fall would not have allowed the session to continue and would have vetoed the idea of the cubs being on the stand if there had been any question of their being in distress.

As you can see, the concern of everyone involved has been at all times for the cubs' welfare. I hope that you will be able to see your way to correcting the impression which your PCW Show review may have created.

John Pearson
Managing Director
Microvitec PLC

Whilst it is clear that Microvitec complied with all legal requirements and intended no cruelty, we would point out that the RSPCA received an enormous number of complaints about the living conditions of the cubs. An RSPCA representative we spoke to at the show said they were powerless to act because of the licence granted by the council.

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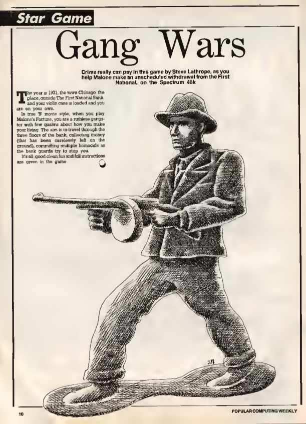
Gang Wars

Crime really can pay in this game by Steve Lathrope, as you help Malone make an unscheduled withdrawal from the First National, on the Spectrum 48k

The year is 1931, the town Chicago the place, outside The First National Bank, and your violin case is loaded and you are on your own.

In true 'B' movie style, when you play Malone's Fortune, you are a ruthless gangster with few qualms about how you make your living. The aim is to travel through the three floors of the bank, collecting money (that has been carelessly left on the ground), committing multiple homocide as the bank guards try to stop you.

It's all good clean fun and full instructions are given in the game.



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Beating the system

Christine Erskine talks to Lee Kristofferson, aka John Wagstaff, programmer of System 15000

Very few games programmers can claim to have achieved cult status within the industry — Jeff Minter and Matthew Smith are a couple of names that spring to mind.

Even fewer can be said to have done the reverse, but Lee Kristofferson, programmer on Craig Communications' *Flight 015* and *System 15000*, is already something of a household name on the Continent.

In his pre-programming existence Lee found more than his fair share of fame and fortune in the Dutch and German pop music world, but only limited success in the UK, being voted number one in *Sounds* magazine alternative charts for a ditty entitled *Night of the Werewolf* is the pinnacle of his success over here so far.

On meeting the man, it is actually quite refreshing to discover that he really looks like a rock star — at a programmers' convention, he'd stick out like a sore thumb. And, like all real rock stars, his stage name is not the one he was born with.

For programming purposes, Lee has reverted back to John Wagstaff. "I became Lee Kristofferson for a number of reasons, but it has always been simply a stage name.

"My first record, in 1977, was called *Dinner with Drac*, and was something of a spoof on the horror theme. At the time, *A Star is Born* had just been released and all those nauseating posters of Barbra Streisand and Kris Kristofferson were up all over the place. The record sleeve had a 'send up' picture similar to the posters, and using the surname Kristofferson also fitted because it was a reversal of Christopher Lee's name, the horror actor. Then the name stuck."

Lee/John became interested in computers through owning a Vic20 and hunted high and low without success for a flight simulation program for it.

"There just didn't seem to be such a thing available, so I began tinkering around with the Vic, talked to a few pilots, decided to forgo extravagant graphics, and ended up with *Flight 015*.

"I tried to make it as realistic as possible — for instance, getting the plane to take off is reasonably easy, but landing it is quite another matter. I hoped that there would be a fair amount of suspense and sweat involved in completing the program."

Having written *Flight 015*, it struck John that it could be commercially viable. "I took it into the Visions store in Kingston, where the assistant suggested I wait for one of the suppliers to turn up and talk to him."

The supplier appeared one hour later — Dave Giles of Craig Communications — and John was signed up almost on the dot.

"There's no way I went deliberately into the computer market — I just sort of fell in, but now I've got two programs out that are selling — and selling well — I'll carry on.

"I hope I'll be able to write computer games and continue making records, because there's such a lot I haven't done in the music industry. For one thing, I desperately want to crack the British music market, and if I can make it in the British computer market too, then so much the better."

John, the computer programmer and Lee, the rock and roll singer turn out a very different type of product. The stage shows, with Lee and an all-female backing group, are big, raunchy, dry-ice and flashing light affairs. "The whole thing is very outrageous and over-the-top. It's not just going to see a concert, it's a Production, and full of very black humour."

By comparison, his latest computer game, *System 15000*, is an adventure based on the simple premise that the computer plays the part of a computer. The storyline involves the player as a hacker breaking into other computers to investigate a computer fraud.

"I'm not really into all that fantasy stuff with dragons and fairies. I wanted to do something that was very real. And, like the flight simulator, I spent a lot of time looking at both the British and US markets to see if it had been done before and I couldn't find anything.

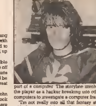
"It took absolutely ages. Because I couldn't find anything to base it on, I started from scratch and wrote the story behind the game in longhand first. The programming from that storyboard took six months. Still, it's the end product that counts — the mechanics of the whole procedure are of little consequence, as far as I'm concerned.

"As for the differences between the music and the games, it's not easy to be gutsy with computer graphics in the same way as you can be with music. I'm particularly interested in film and films, and at the moment it's obvious that people are being sold short with computers and their beep-beeps. I want to develop the idea of using computers for visual programs that are more film-like in the not-too-distant future."

In the short-term, however, *System 15000 2* is underway, and due to come out soon after Christmas. Before Christmas, Lee Kristofferson has a new single and album out, *The Night Time is the Right Time* which he fervently hopes will be as successful here as his two games have been.

"The last record, *Fire*, came out a year ago, and then I got involved with *System 15000*, and the music took a back seat for a while. In some ways, it was very good for me to drop music for that six months, because it made me sit up and think hard about exactly what I wanted to do, and where it was getting me."

Whether or not the music catches on in Britain the way that *Flight 015* and *System 15000* have remains to be seen, but it's all a far cry from John's first job, mucking out the animals at Chessington Zoo. Fame in Germany has also meant he is able to live in comfortable style in, of all places, Carshalton Beeches, fringe of the stockbroker belt. Hardly the place you'd expect to find the Continental priest of demonic rock and flight simulations for the Vic20.






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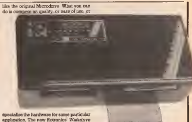

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Design decision

Hardware *Wafadrive* **Micro** Spectrum **Price** £129.95 **Supplier** Rotronics, 29 Octagon Parade, High Wycombe, Bucks

The Sinclair Microdrives have, as with most Sinclair products, received a very mixed reception. Some people hate the things, describing them as slow and unreliable. Others, such as myself, find them both convenient and reliable. We could be talking about different items of equipment as far as our agreement of opinion goes. However, one thing which cannot be argued against is that the Microdrives fill a gap between the oh-so-slow cassette recorder and the floppy disk drive, both in terms of cost and performance.

If you want to produce an alternative to Sinclair Microdrives, then there are only a limited number of design decisions available to you. You must compete on cost, which cuts out the disk technologies and such things as bubble memories, you must compete on storage capacity and you must compete on save/load speed, which limits what you can do with tape. Thus you tend to end up with something looking very much like the original Microdrive. What you can do is compete on quality, or ease of use, or



specialise the hardware for some particular application. The new Rotronics *Wafadrive* is just such a product.

Providing a twin-drive system, complete with sophisticated word processing software the *Wafadrive* offers the same facilities as the Sinclair Microdrive plus a few more. The price of *Wafadrive* is competitive with a two-drive Sinclair set up, at £130, but you do get more for your money. Using the *Wafadrive* is slightly easier than Microdrives, and disk-like names and file types have been adopted. A similar technical approach has been used for both the *Wafadrive* system and the Sinclair Microdrives, which makes it difficult to use either system for storing the majority of commercial tape-based software.

Overall, the *Wafadrive* hardware is more bulky than the Sinclair Interface 1 plus Microdrives, and appears more robust. The wafers are cheaper than the Sinclair versions and even have a auto-sliding cover to protect the tape from accidental damage. They come in 16K, 64K, and 128K sizes, but are generally slower in use than the Sinclair ones.

Rotronics leaves the Sinclair Interface 1 miles behind when it comes to built-in interfaces, offering a Centronics output for driving most common printers as well as an RS232 for two-way communications. The RS232 appears to be a full bi-directional interface suitable for use with a modem, which Sinclair's is not so suited to. The *Wafadrive* does not provide a network port.

The word processing software is good, although you will need a good TV or a monitor to make best use of the 64 column display (just as for *Tasword*). One of the interesting features is the ability to set up special printer codes to suit your particular printer, which makes for a much more serious word processing system. A total of 351 lines filled with text can be held in memory about eight to 10 times the length of this article. An in-built Help feature allows you to keep track of all the features.

To summarise, the *Wafadrive* provides a serious competitor to the Sinclair Microdrive system when two drives are required, and in several respects offers superior facilities. I can see no reason why *Wafadrive* should not be used with most of the popular keyboards currently available. It simply plugs into the Spectrum expansion port and sits behind the computer, not under it as Interface 1. The word processing software is well suited to the hardware and could, if we can convince Rotronics to produce additional software to the same quality such as communications and spreadsheet, prove to be a very useful system.

John Cochrane

Converter lead

Hardware *Joystick adaptor lead* **Micro** QL **Price** £6.00 **Supplier** Custom Electronics, 40 Sharrow Lane, Sheffield, Yorkshire S11 8AA

When Sinclair designed the QL, they decided to make it as difficult as possible to plug anything extra into the beast, by using totally unobtainable types of sockets. The joystick sockets were chosen for the most way-out connectors, namely a reverse Telecom 6-way plug, which is very difficult to get hold of. However, Custom Electronics have got hold of them, and can supply a converter lead so that you can plug the industry standard Atari type joysticks into your QL. (If you want to use both joystick sockets, you'll need two leads — they are identical.)

I can't say much about the lead itself, it's just a plug, a socket, and a short length of cable. Supplied with it is a very crude drawing program, poorly written, but then you'd hardly expect Melbourne Draw with a £6 cable, now would you?

If Sinclair had used sensible sockets in the first place, there would be no need for this, but they didn't, so there is, and this one is cheap, and it's available. All I need now is a game on my QL to use the joystick! I wonder if Custom are working on a similar cable for the Commodore C16 and Plus 4, which also have weird joystick sockets.

Andrew Pennell

Animated

Program *Flip & Flop* **Micro** Commodore 64 **Price** £8.95 **Supplier** Statesoft, Bessemer Drive, Stevenage, Herts

Flip & Flop is set in the zoo of the future — Flip is a kangaroo and Mitch a chimp. You have to guide Flip first all round the zoo, which consists of a series of platforms linked by ladders. The platforms are made of squares, some of which change colour when you land on them. If you change all the special squares you progress to the next level, where you have to guide Mitch round the platforms in the same way. However, since Mitch is a chimp, he is hanging from them not jumping on top of them. From level three onwards the zoo keeper and his net appear, to try to recapture the animals.

The size and complexity of the zoo increases as you get further into the 36 screens. Every five levels there is an animated intermission where you see Flip and Mitch rejoin their friends in the circus. The platforms are cleverly presented in 3D perspective and the whole zoo scrolls smoothly on and off the screen as the characters move round it.

The diagonal control of the animals via the joystick takes a while to get used to, but once mastered, the game is hauntingly addictive.

Richard Corfield

Toadstool

Program *Bumble Bee* **Micro** Electron **Price** £9.95 **Supplier** Micro Power, Sheepscar House, Sheepscar Street South, Leeds LS7 1AD

Micro Power's *Bumble Bee* is, I am afraid, very much like *Pacman* type games. Instead of little meanies, you have a bumble bee trying to stay alive and not get caught by the wicked spider.

At the outset of the game you have the option of key or joystick control. Once again, this is a game where it is hard luck if your interface is Acorn's own Plus 1, because your joysticks are not catered for. You need switched, not analogue joysticks.

The maze which you have to guide your bumble bee around is built up of turnstiles which can be swung by the bumble bee but not by the spiders. Therefore, it is a maze for the spider but not for the bumble bee — if you see what I mean! Anyhow, the bumble bee goes on his way gathering pollen and keeping out of the way of the dreaded toadstools and firebarrels. If he walks into either, he's dead. He also has to watch out for the wicked spiders who can only be killed by luring them into the firebarrels, as toadstools don't affect them.

There is an early warning system to tell the bumble bee that the spider is about to emerge — the pollen flashes. To escape into the next maze, you must eat up all the pollen after which a door in the escape hatch opens.

I like *Bumble Bee*. Even though it is similar to other games, the turnstile action within the maze adds an interesting innovation and therefore demands a degree of cunning in order to see these against the spiders.

Fred Short

Relegated

Program *Amstra-Draw* **Price** £9.95 **Micro** Amstrad **Supplier** B.S. McAlley, 1 Cowleaze, Chinnor, Oxford OX9 4TD

A pretty straight conversion from the Spectrum release *Spectra-draw*, the pools prediction utility which was acclaimed as being the most attractive and friendly of its genre. Indeed my first impression was pleasant surprise at the quality of packaging and presentation. There is a small manual taking you through all the features and the screen display is easy to follow being menu-driven and with prompts for data entry and correction. It comes with an extensive database containing the results of many thousands of matches in recent years. This must be updated each week to ensure that current form is taken into account.

It is written in Basic, which doesn't matter a bit, and you are positively encouraged to break in to the listing to correct data for relegation, etc. If you feel this is beyond you, or you allow the database to fall behind you can have both updated for a small charge. Predictions are for draws only but you can ask for the least likely ones as well. There is also a routine to help you fill out the coupon. Using the system, the company anticipates that you will finish the season with a small profit.

One point does worry me though — unless you include a random element in your selection, as advised, the more people who use the utility the smaller the winnings will be.

Tony Kendle

Haunted

Program *Moonlight Magic* **Price** £5.95 **Micro** Spectrum 48K **Supplier** ESP, 6 Royal Buildings, Talbot road, Port Talbot, SA13 1DN

Boasts that a game is *'entirely new'* (ESP's italics) are risky, particularly when it is so obviously a hybrid of platform games and painter games with *Manic Miner* pretensions.

As Mack, you have to paint a five storey haunted house, avoiding ghosts, spiders, tax men et al, jumping over open windows, recharging your brush and beating the time limit. Complete a screen and you proceed to the next, more difficult one.

There is a commendable selection of joystick options and redefinable keys plus sprite animation and continuous sound — but none of these can detract from the basic dullness of the game's aim.

Each screen is rather irrelevantly named, which, however, does not compensate for their blandness. All the variety is provided by more obstacles and fewer ladders, until the last screens become almost impossible.

It does take skill to dodge the ghosts and time jumps exactly, which is fun for a while, but I found no real incentive to continue.

If this program had appeared twelve months ago it would have deserved more attention. Now it is exceptionally average.

John Minson

Tantalising

Program *The Final Mission* **Price** £5.95 **Micro** Spectrum 48K **Supplier** Incentive Software Ltd., 54 London St., Reading RG1 4SQ

Previous veterans of *Ket* will need no encouragement from me to buy this. Incentive are living up to their name by providing a video recorder for the first person to complete the trilogy. But newcomers need not be discouraged. A fresh character is generated at the start of this text only adventure, ready to seek out the dread Vran himself.

I've always felt this the *Ket* style comes closer to *Dungeons and Dragons* than the brainteaser type of adventure. Combat, or more often, avoiding it, is an integral part of the system.

The dungeon itself is nicely designed, there are some moderately complex puzzles and some tricky wandering monsters, of which one can be extremely useful — 'nuff said. Responses are sometimes a little slow and some descriptions a little sparse though others include tantalising details.

The screen display is a model of clarity, with percentage scoring above a scrolling display, and small tokens to illustrate many items. However I was a trifle disappointed, I think the adventure needs the atmosphere built up by the earlier parts and would suggest starting with *Mountains of Ket* and making this a real *Final Mission* rather than a stand alone adventure.

John Minson

Puddles

Program *Noah* **Price** £5.95 **Micro** Spectrum 48K **Supplier** ESP, 6 Royal Buildings, Talbot Road, Port Talbot SA13 1DN

It's a hard life being an Old Testament hero. Thirty one pairs of animals to drag by their tails to your houseboat, only three days to do it, and the forecast is rain.

Noah, understandably paranoid about water, travels through a puddle-pitted landscape of 256 screens containing a large wall (find the key first) and a maze (find a lamp first).

While Noah wanders, doubtlessly whistling 'Give me a home where the buffalo roam ...' along with rabbits, dodos and a deadly snail, time ticks away and angry villagers try to stone this prophet of doom.

Much of this game has a Python-ish humour, adding to the fun. Play is preceded by a scrolling *History of the World (Part One)* — but the fun disappears when you have to sit through it every game.

The graphics are attractive and smoothly animated, although there is some lack of definition of the fatal puddles. Noah, however, is a delightfully large sprite.

My main reservation is that in a game of this scale, a *Save* facility would be useful, and the adventurer may tire of constant return visits to the Ark. However, it is different enough to be of interest, if not perfect.

John Minson

Intergalactic

Program *Elite* **Price** £14.95 BBC, £12.95 Electron **Supplier** Acornsoft, Betjeman House, 104 Hills Road, Cambridge CB2 1LQ

Elite marks a new departure for Acornsoft by blurring the line between arcade and adventure games more than ever. Superb three dimensional graphics are combined with a conventional trading game to produce a highly realistic simulation of intergalactic conflict, commerce and intrigue.

In the game, the universe is made up of eight galaxies containing 250 planets each, which are orbited by a single space station. You are the commander of a Cobra MkIII fighter. At the start of the game, the ship is docked with the space station orbiting the planet Lave. You are given a full tank of fuel and 100 cash credits. Initially you are rated as harmless and your criminal record is clean. Having bought anything you need from the suppliers in the station, you use the local galactic chart to program a course for the planet you wish to visit next. The chart also allows you to determine the political climate of a given planet. Having picked a planet, usually on the basis of the profits you can make by selling goods there, you leave the space station. Your sole means of defence (or attack) are three heat seeking missiles and a laser. You may now use the

No work

Program *Lazy Jones* **Price** £6.95 **Micro** Commodore 64 **Supplier** Terminal Software, Derby House, Derby Street, Bury BL9 0NW

If you are someone who would much rather spend your time playing games on your micro than doing more boring things like working for a living, you will have plenty of sympathy for the principal character in *Lazy Jones*. Lazy Jones works in an hotel, and in almost every one of the 18 rooms there is a different computer game. He is much more interested in playing the games than doing his work, so the object of the game is to guide him from room to room on the three floors of the hotel so that he can have a go at all the games. You must avoid being caught by the hotel manager, and also your cleaning trolley — if you bump into this you have a heart attack at the thought of having to do some work. You can enter each games room once only, but if you survive all the games you can play each one again.

An original idea for a game and good fun to play. The games in each room are really rather basic arcade shoot-outs but they are nicely presented on a TV screen within the main screen. Although the individual parts of the game are unexceptional, the whole game is unusual and varied enough to be interesting. Hardened arcade game players may not find it challenging enough, but many will enjoy it.

Richard Corfield

hyperspace drive to get to the planet you selected.

On materialising, you will find yourself within visual range of the planet Your objective is now to reach the space station orbiting the planet to trade with it. However, if you are carrying particularly valuable cargo, or you have a price on your head due to some misdemeanour, you are fair game to pirates and bounty hunters Incredible three dimensional battles usually ensue

Having made a small fortune (which is easier if you cast away your scruples and trade in illegal drugs and slaves), you can buy lots of goodies for your ship like extra lasers, electronic countermeasures against missiles and a highly improbable device which speeds up energy replenishment

Joysticks or the keyboard may be used to move the ship Even when using the joysticks you still need to use the keyboard to change speed, trade, launch missiles and so on. A function key strip is provided making life easier

The screen display of all this is rather neat. Most of the screen is given over to the view from your ship, represented using wire frame figures with hidden line removal in mode 4 This part of the screen is updated frequently giving exceptionally smooth animation. Our only quibble with the display is that planets are transparent, which makes them look more like bubbles

Your objective is to make lots of money, buy lots of weapons and kill lots of people, hence becoming a member of the Elite Very laudable

For the price, you get a disc or cassette a flight manual (borrowed in places from the HHGTTG) a small novelette of dubious use and literary standing and a couple of reference cards summarising the 51 command keys you can use The whole thing is beautifully packaged in a high gloss, lots-tech cardboard box.

Tony Pearson and Jeremy Ruston

Body blow

Program *Boxing* **Micro** Spectrum **Price** £5.95 **Supplier** Silicon Joy, 7a Richmond Hill, Bournemouth BH2 6HE

Apparently making a living for years from the unsuppressible *Football Manager*, Addictive Games have finally got around to releasing another tape For those who tire of winning soccer accolades Kevin Toms offers new sporting horizons with *Boxing* — satisfy your primitive blood lust whilst leaving the brain damage to the pros To match a change from strategy/simulation to arcade, there has been a change of label name but the painstaking attention to detail has not been abandoned since *Boxing* sticks closely to the official system of scoring — making it an immediate candidate as an educational aid for Olympic judges.

The two or more sluggers are under the control of you and your friends (I'm afraid you need one of these if you want to play the game) Graphics are adequate if not breathtaking and controls are simple — left, right, hit head and hit body Points are awarded for blows and a clear margin of 20 gives you a knockout Immediate impressions were that it was a great two-player game but small flaws in the gameplay spoiled it Notably in the clinches no points are awarded no matter how hard you thrash away, meaning that one or both players must back off. This invariably means your guard falls and you lose points The result is cries of 'Move back!' 'You move back pig!' and lots of boring draws. In fact we came closer to boxing in real life I was also annoyed by the lack of a replay option which meant there are lots of tiresome re-entries of players' names.

Tony Kendle

Registered

Program *Zeus 64* **Price** £9.95 **Micro** Commodore 64 **Supplier** Crystal Computing. 125 Smedley Road, Cheetham Hill, Manchester

Zeus 64 is an assembler/editor development package complete with a co-resident machine code monitor The two parts of the package are loaded together but operate separately, although it is easy to swap between them After loading you are left in the monitor This provides a pretty standard but nicely implemented set of commands for the direct manipulation of memory and registers, plus formatted disassembly and memory listing The ability to execute a program one instruction at a time is also provided. From the monitor you can exit to standard Basic. No Basic memory is used by the *Zeus* package, but the monitor sits in the 4K buffer at $C000 so unfortunately this is unavailable for your own routines

The editor/assembler facilitie are also accessed from the monitor Using the editor you can enter assembler programs in much the same way as Basic However, a number of useful toolkit type commands are available, eg, auto line number, block delete of lines, find/change, renumber, etc All commands in both editor and monitor are single letters Unfortunately they are not very consistent between the two programs, eg, *X* in the monitor exits to Basic whereas in the editor it executes the last program assembled!

The assembler is a very fast multi pass program, which supports the usual range of pseudo-ops, although with some slightly non-standard syntax. It lacks some of the most powerful features of more expensive products, eg, macros and automatic file linking but it has some good features of its own, like labels of up to 31 characters and a powerful expression evaluator

Richard Corfield


EXPERIENCE THE STUNNING 3-D REALISM OF
DYNAVISION

True to character

An easy to use character editor for the Commodore 64

written by ***Gary Foreman***

This is a character editor for the CBM 64. It has most of the required features that you might expect of such a program. Type in the first part (m/c data) and *Save* it as *CBM 64 EDITOR V1*. Then type in the second part, *Save* it as *ED 1*. To use simply *Load* and *Run* the first part. The features that are available are listed below. Most inputs are fool-proof (if there is such a thing) and the current status is shown in the status lines of the screen.

Program Notes

L —	*Load* a character set from tape or disk.
S —	*Saves* a character set to tape or disk.
M —	masks another character with the one displayed on the grid.
R —	reflects the grid about the y-axis
I —	inverts the displayed character (inverse video).
O —	restores original charset from ROM.
+/—	adds/deletes a dot to/from the grid.
CRSR —	keys to move cursor
CLR —	clears the grid area.
N —	goto next character, saving the present one in memory
Q —	quits the editor
P —	prints the data of the displayed character to screen or printer
D —	deletes a certain character from the present set.
F1 —	changes *Border* colour
F3 —	changes *Screen* colour
F5 —	changes *Character* colour
F —	changes current filename.

```
10 S=49152:C=0:PRINT" PLEASE WAIT WHILE I LOAD MACHINE CODE"
20 READA$:IFA$="*"THEN40
30 FORX=0TOLEN(A$)/2-1:L$=MID$(A$,2*X+1,2):GOSUB90:POKES+C,L:C=C+1:NEXTX:GOTO20
40 IFC<>1048THENPRINT" NOT ENOUGH DATA":END
50 Q$=CHR$(34):D=PEEK(186):PRINT" LOAD
"Q$"ED.1"Q$","D:POKE631,19:
POKE198,2 POKE632,131:
60 NEW

90 L=0:FORJ=1TO2:L%=ASC(MID$(L$,J)):L=
16*L+L%-48+(L%>64)*7:NEXT:RETURN
100 DATA"78A50129FB8501A00084FE84FC"
110 DATA"A9D085FDA93005FF81FC81FE88D0F9"
120 DATA"E6FDE6FFA5FDC9D0D0EFA5010904B5"
130 DATA"01586QEAEAA0008699D006A9019 9D0"
140 DATA"DA88D0F460EAA9002090FFA901A8AA"
150 DATA"20DAFFA0FFCEA200A0CF20BDFFA9FE"
160 DATA"A23098FFA20086FEA040A2002D8FF"
170 DATA"A9C02090FF60A9002090FFA901AA8"
180 DATA"208AFFA0FFCEA200A0CF20BDFFA900"
190 DATA"20D5FFA9C02090FF60EAA9002090FF"
200 DATA"ADFFCEA200A0CF20BDFFA901A208A0"
210 DATA"01208AFF20C0FFA9FEA23886FFA200"
220 DATA"86FEA220A04020D8FFA9C02090FF60"
230 DATA"A9002090FFADFFCEA200A0CF20BDFF"
240 DATA"A901A208A001208AFF20C0FFA90020"
250 DATA"D5FFA9C02090FF600000000000000"
260 DATA"00000000000000000000000000000"
270 DATA"000000AD400385FEA90085FF2064C1"
280 DATA"A5FE850BA5FF858C18A58C6930858C"
290 DATA"A900858DA58E858EA58C858F18A58E"
300 DATA"658D858EA50F6900858FA000B18E05"
310 DATA"14A9008515A9008502A58D85FEA929"
320 DATA"85FF2064C1A5FE85A3A5FF85A418A5"
330 DATA"A3650285A3A5A4690085A418A5A369"
340 DATA"3885A3A5A4690485A4A92E858718A5"
350 DATA"14651485 14A5156515 8515A515C900"
360 DATA"F008A9008515A9518597A000A58791"
370 DATA"A318A5A4693D485A4A0860291A3E602"
380 DATA"A502C908D09AE68DA58DC90BF0034C"
390 DATA"1FC10810A900A2086A66FE90031865"
400 DATA"FFCA10F585FF60A9008588A8008502"
410 DATA"A900858C2010C2C951D00AA68C18A5"
420 DATA"027D30C28502E68CA58CC908D0E7AD"
430 DATA"400385FEA90085FF2084C1A5FE8514"
440 DATA"A5FF851518A51569308515A502A48B"
450 DATA"9114E688A58BC908D0B860A56885FE"
460 DATA"A92085FF2064C1A5FE85A3A5FF85A4"
470 DATA"18A5A3693885A3A5A4690485A4A48C"
480 DATA"81A3608040201008040201A900858B"
490 DATA"AD400385FEA90085FF2084C118A5FF"
500 DATA"693085FFA5FE85A3A5FF85A4A04103"
510 DATA"85FEA90085FF2084C118A5FF693085"
520 DATA"FFA5FE8514A5FF8515A4608 1A31114"
530 DATA"91A3E688A58BC908D0F04C00C1A900"
540 DATA"858BAD400385FEA90085FF20B4C118"
550 DATA"A5FF693085FFA5FE85A3A5FF85A4A4"
560 DATA"8BB1A349FF91A3E688A58BC908D0F0"
570 DATA"4C00C1A900858BA9208502A900858C"
580 DATA"2016C2C951D00AA68C18A5027D11C3"
590 DATA"8502E68CA58CC908D0E7AD400385FE"
600 DATA"A90085FF2084C1A5FE8514A5FF8515"
610 DATA"18A51569308515A502A48B9114E68B"
620 DATA"A508C908D00080010204081020408 0"
630 DATA"00000000000000A5C5C940D0016 0C9"
640 DATA"28D005A92E4CCAC3C928D005A9514C"
650 DATA"CAC3C933D0034C4EC3C802D0034C80"
660 DATA"C3C90700D84CA5C3A08D02C901F00C"
670 DATA"A90085FB85FC2000C14CF3C3AD4003"
680 DATA"85FEA90085FF2004C110A5FF693085"
690 DATA"FFA007A90091FE8810F84C55C3AD8D"
700 DATA"02C801D00FC6FCA5FCC9FFD004A907"
710 DATA"85FC4CF3C3E6FCA5FCC908D004A900"
720 DATA"85FC4CF3C3AD8D02C901D00FC6FBA5"
730 DATA"FBC9FFD004A90785FB4CF3C3E6FBA5"
740 DATA"FBC908D004A90085FB4CF3C348A5F6"
750 DATA"05FEA92885FF2084C1A5FE85A3A5FF"
760 DATA"85A418A5A3693885A3A5A4690485A4"
770 DATA"A4FC6891A34CC7C12000C1A5F685FE"
780 DATA"A92085FF2084C118A5FE693085A3A5"
790 DATA"FF690085A4A4FCA80591A34CC7C100"
800 DATA"*"
READY.
```

```
20 PRINTCHR$(8);CHR$(142);CHR$(8)
30 POKE56,47:POKE55,255:POKE52,47:POKE51,255:CLR
40 POKE251,0:POKE252,0:C8=54272
60 L$="────────────────────────────"
70 S=0:F$="00:SET ONE":DS$="OK":CH=0
80 DR=49285:DL=49345:TS=49210:TL=49281:CR=49152
:FS=49200:V=53248:SC=12288
90 POKEV+32,0:POKEV+33,0:POKE646,1:SYSCR:POKEV+24
,28:MC=49731:IN=49808:RE=49858
100 ME$="":BL$=" ":DS=CHR$(20)
110 S$(0)="EDIT ":S$(1)="LOAD ":S$(2)="SAVE
":S$(4)="INPUT":S$(5)="PRINT"
170 GOSUB2000
180 GOSUB2100
190 GOSUB2700
200 PE=PEEK(197)
210 IFPE=38THENSYSCR:GOTO190
220 IFPE=18THENGOSUB2600:GOTO190
230 IFPE=42ORPE=13THENGOSUB2300:GOTO200
240 IFPE=21THENGOSUB2500:GOTO200
250 IFPE=4THENPOKE53280,(PEEK(53280)+1)AND15:
GOTO200
260 IFPE=5THENPOKE53281,(PEEK(53281)+1)AND15
:GOTO200
270 IFPE=6THENPOKE646,(PEEK(646)+1)AND15:
GOSUB2100:GOTO190
280 IFPE=62THENPRINT"":END
300 IFPE=39THENGOSUB2900:GOTO200
310 IFPE=26THENGOSUB3000:GOTO200
320 IFPE=41THENGOSUB3100:GOTO170
330 IFPE=36THENGOSUB3300:GOTO200
340 IFPE=33THENPOKE832,CH:SYSIN:GOTO200
350 IFPE=17THENPOKE832,CH:SYSRE:GOTO190
360 SYS49852:GOTO200
2000 POKE53285,1:PRINT"[redacted]";L$;"";L$;
"";L$;"";L$
2010 SYSFS:PRINT"",TAB(15)"┌──────────┐"
2020 FORQ=1TO8:PRINTTAB(15)"│          │
":NEXTQ:PRINTTAB(15)"└──────────┘"
2025 RESTORE
2030 READQ1$,Q2$:IFQ1$<>"***"THENPRINTQ1$;TAB
(26);Q2$:GOTO2030
2040 DATA"LOAD/SAVE","F1 BORDER"
2041 DATA"MASK CHAR","F3 SCREEN"
2042 DATA"REFLECT CHAR","F5 CHAR COLOR"
2043 DATA"INVERT CHAR","FILENAME"
2044 DATA"ORIGINAL SET","GOTO CHAR"
2045 DATA"+/- ADD/DEL",""
2046 DATA"NEXT CHAR",""
2047 DATA"QUIT EDITOR","ALL CRSR KEYS"
2048 DATA"PRINT DATA",""
2049 DATA"DELETE CHAR",""
2050 DATA"***",""
2060 POKE53285,27:RETURN
2100 PRINT"[redacted]STATUS:";DS$;
2110 PRINTTAB(13);"";BL$;
2120 PRINTTAB(13);"FILENAME ";F$
2125 CH$=STR$(CH):CH$=RIGHT$(CH$,LEN(CH$)-1)
2127 IFLEN(CH$)<3THENCH$="0"+CH$:GOTO2127
2130 PRINT"    CH ";CH$+" "
2135 PRINTTAB(13);"";BL$;
2140 PRINTTAB(13);"DISK ";DS$
2150 PRINT"  USER:";ME$;:RETURN
2200 POKE198,0:IN$="":S=4:GOSUB2100
2210 GETI$:IFI$=""THEN2210
2220 IFI$=DSANDLEN(IN$)>1THENIN$=LEFT$(IN$,LEN
(IN$)-1):PRINTDS$;
2230 IFI$=DSANDLEN(IN$)=1THENIN$="":PRINTDS$;
2240 IFI$=CHR$(13)THENME$=BL$:GOTO2100
2250 IFI$<" "ORI$>"←"THEN2210
2260 IFLEN(IN$)=16THEN2210
2270 IN$=IN$+I$:PRINTI$;:GOTO2210
2300 IFA$="L"THENG=1
2310 IFA$="S"THENG=2
2320 ME$="TAPE OR DISK ?":GOSUB2100
2330 GETI$:IFI$=""THEN2330
2340 IFI$=CHR$(13)THENG=0:GOTO2240
2350 IFI$<>"T"ANDI$<>"D"THEN2330
2355 ME$=BL$:GOSUB2100
2360 ONGGOTO2370,2420
2370 IFI$="T"THEN2390
2380 ME$="LOADING "+F$:GOSUB2100:SYSDL:GOTO2470
2390 ME$="PRESS PLAY ON TAPE":GOSUB2100
2400 IFPEEK(1)=55THEN2400
2410 SYSTL:GOTO2470
2420 IFI$="T"THEN2440
2430 ME$="SAVING "+F$:GOSUB2100:SYSDS:GOTO2470
2440 ME$="PRESS RECORD & PLAY ON TAPE":GOSUB2100
2450 IFPEEK(1)=55THEN2450
2460 SYSTS
2470 IFI$="T"THEN2630
2480 OPEN15,8,15:INPUT#15,DS,DS$:CLOSE15:GOTO2630
2500 S=3:ME$="FILENAME ":GOSUB2100
2510 GOSUB2200:F$=IN$:F=LEN(F$)
2520 POKE52991,F
2530 IFF=0THEN2550
2540 FORA=1TOF:POKE52991+A,ASC(MID$(F$,A,1)):NEXTA
2550 ME$=BL$:S=0:GOSUB2100:RETURN
2600 ME$="CHAR# ":GOSUB2200
2610 IFVAL(IN$)>255THEN2600
2615 CC=VAL(IN$)
2620 FORQ=CC*8TOCC*8+7:POKESC+Q,0:NEXTQ
2630 ME$=BL$:S=0:GOSUB2100:RETURN
2700 POKE832,CH:SYS49408:RETURN
2800 GOSUB2500:CH=CH+1:IFCH>255THENCH=CH-256
2820 GOSUB2100:GOSUB2700:RETURN
2900 POKE832,CH:SYS49607:RETURN
3000 ME$="CHAR # ":GOSUB2100
3010 GOSUB2200:IFVAL(IN$)>255THEN3000
3020 CH=VAL(IN$):S=0:ME$=BL$:GOSUB2100
3030 GOSUB2700:RETURN
3100 S=4:ME$="SCREEN OR PRINTER ?
":GOSUB2100:GOSUB2200
3110 IFIN$="S"THEND=3:T=5:GOTO3130
3120 T=20:D=4:S=5:GOSUB2100
3130 CLOSE1:OPEN1,D:CMD1
3140 IFD=3THENPRINT""
3150 PRINT:PRINT:PRINTSPC(23+(D=3)*15)"CHAR
# ";CH$
3160 PRINT
3170 X=SC+8*CH:FORR=0TO7:Y=PEEK(X+R):L=Y:N=Y
3180 PRINTSPC(T);
3190 FORC=0TO7:Q=46:Y=Y*2:IFY>255THENQ=113:Y=Y-256
3200 PRINTCHR$(Q);:NEXTC
3210 PRINTSPC(3)"$";
3220 L=L/16:FORJ=1TO2:L%=L:PRINTCHR$(48+L%-
(L%>9)*7);:L=16*(L-L%):NEXT
3230 PRINTSPC(5);"#";N:NEXTR
3235 PRINT
3240 PRINT#1:CLOSE1:IFD=4THEN3250
3245 PRINT"[redacted] PRESS ANY KEY "
3247 GETQ$:IFQ$=""THEN3247
3250 S=0:RETURN
3300 ME$="CHAR # ":GOSUB2100:GOSUB2200
3310 IFVAL(IN$)>255THEN3300
3320 MA=VAL(IN$):POKE833,MA:SYSME:S=0:ME$=BL$:
GOSUB2100:RETURN
```

ATTENTION! ATTENTION! ALL COMMODORE USERS

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PCWK

Smooth operator

***Andrew Burgess** shows how to produce smooth scrolling in machine code for the ZX Spectrum*

Here is a short machine code routine that utilises the finest possible scrolling on a 48K Spectrum! I have found it most useful in my own programs, and I am sure that you will in your own.

To demonstrate this, first type in Program 1. This will *Poke* the machine code into memory. Save it on a blank tape, and then type in *Run*. Save the machine code it generates with, *Save "M/C" Code 62000, 100*. In any case, the code is now in the Ram of the Spectrum.

New the program with *New* (not *Print Usr 0*). Now type in the Demonstration program, and *Save* it to tape. If all is well, when you type *Run*, the message will be scrolled from right to left across the top line of the display. You can easily change the message by typing in a new Line 20, altering *A$* as you wish. To break out of the program, keep *Caps Shift* and *Space* pressed down for a time.

If something has gone wrong, load up the first program and check the Data statements. When loading the machine code from power up, remember to use *Clear 61999:Load "" Code*.

Having succeeded in making the message scroll effortlessly across the screen, you may wish to use the routine in your own programs. To do this you will need Lines 9800 and 9810 of the demonstration routine somewhere within your own program. Use *Gosub 9800* to poke your message into memory, where it is held as *A$*. The variable *Y* represents the row in which the message will be printed. The message itself has a maximum length of 65536 characters.

Gosub 9810 is used to print and scroll your message. I suggest you experiment with the *Ink* values in Lines 9810 and 10 to change the colour of the message. If you are not running with black paper, then you will have to change the numbers in the *Poke* and after *Ink*. The new numbers should be: *Ink* (colour of paper), *Poke* 22528+31+(y*32), (the colour of the paper times eight)

> PROGRAM 1

```
  1 REM ************************
  2 REM *                      *
  3 REM *   MESSAGE SCROLLER   *
  4 REM *                      *
  5 REM *  BY ANDY J. BURGESS  *
  6 REM *                      *
  7 REM *    2nd JUNE 1984     *
  8 REM *                      *
  9 REM ************************
 10 CLEAR 61999
 20 FOR n=62000 TO 62100
 30 READ a
 40 POKE n,a
 50 NEXT n
 60 DATA 62,2,205,1,22,243,1,66
 70 DATA 0,33,148,242,197,229
 80 DATA 62,22,215,62,2,215,62
 90 DATA 31,215,225,229,126,215
100 DATA 6,8,197,6,159,14,6,197
110 DATA 205,170,34,24,26,193,5
120 DATA 120,254,151,32,243,1
130 DATA 158,7,11,120,177,32
140 DATA 251,193,16,227,225,35
150 DATA 193,11,120,177,32,202
160 DATA 251,201,126,203,39,119
170 DATA 35,6,31,126,203,39,56
180 DATA 2,24,4,43,203,198,35
190 DATA 119,35,16,241,24,204
200 DATA 33,0,0,205,166,242,120
210 DATA 163,0,0
```

> DEMONSTRATION

```
  10 BORDER 0: PAPER 0: INK 7: C
LS
  20 LET a$="...... THIS ROUTINE
 WILL SCROLL A MESSAGE ACROSS TH
E SCREEN ": LET y=0
  40 GO SUB 9800
  50 GO SUB 9810
  60 GO TO 50
9800 FOR n=1 TO LEN a$: POKE 620
99+n,CODE a$(n): NEXT n: LET a=6
2000: POKE a+7,LEN a$-255*INT (L
EN a$/256): POKE a+8,INT (LEN a$
/256): POKE a+16,y: POKE a+31,17
5-(y*8): POKE a+44,175-(y*8)-8
9810 POKE 22528+31+(y*32),0: INK
 0: RANDOMIZE USR 62000: RETURN
```

> ASSEMBLY LISTING (FROM ZEUS)

```
L,,84
        ORG 62000
        ENT
        LD A,2
        CALL #1601
        DI
        LD BC,4
        LD HL,62100
outer3  PUSH BC
        PUSH HL
        LD A,22
        RST #10
        LD A,0
        RST #10
        LD A,31
        RST #10
        POP HL
        PUSH HL
        LD A,(HL)
        RST #10
        LD B,8
outer2  PUSH BC
        LD B,175
        LD C,8
outer1  PUSH BC
        CALL #22AA
        JR shiftl
aftsh   POP BC
        DEC B
        LD A,B
        CP 167
        JR NZ,outer1
        LD BC,1958
self    DEC BC
        LD A,B
        OR C
        JR NZ,self
        POP BC
        DJNZ outer2
        POP HL
        INC HL
        POP BC
        DEC BC
        LD A,B
        OR C
        JR NZ,outer3
        EI
        RET
shiftl  LD A,(HL)
        SLA A
        LD (HL),A
        INC HL
        LD B,31
sh1     LD A,(HL)
        SLA A
        JR C,set
        JR next
set     DEC HL
        SET 0,(HL)
        INC HL
next    LD (HL),A
        INC HL
        DJNZ sh1
        JR aftsh
P0
```

Take the money and run

***A J Laurance** presents a utility to display and auto-run programs on the QL*

Boot is not a device for kicking th dog but a programe to display a menu of programs and autoload the selected program for the Sinclair QL.

The program is activated by the autoload facility of the QL on powerup or reset. Any program called *Boot* on microdrive one will be automatically loaded and run after the powerup initialisation. The display on this program has been organised for the "TV" display option but could be modified for the monitor option if needed.

To create a datafile type in *GOTO 2000*. To edit a single entry, type *change*. To save changed data, you type *save*.

Note that in the listing hash appears as a £ sign, and underscore as ←. Also the QL needs an 'intelligent' printer to produce listings, and my printer will not automatically overspill on to another line, but stops printing, and needs both carriage return and line feed which the QL does not produce. As a result I had to produce the listing as a data file to import to the Quill word processor, in order to use the excellent Quill printer driver. Due to Quill's word wrap which you cannot switch off, a new line is produced too soon, so as not to break up words. Thus, the listing does not look exactly as it does on the screen (eg, Line 2100).

The method by which I achieved this might be of interest, as I have seen it stated that this feat is not possible. The following actions are done in direct mode so as not to appear in the listing itself.

Firstly, *OPEN ← new£5, mdv1 ← listing ← exp*. A channel to microdrive is opened called listing←exp (for export to Quill it will not work without the EXP). Next *LIST £5*. The listing is sent to the microdrive file. Finally, CLOSE£5, (Very important as the lack of end of file marker will cause the whole of Quill to crash).

Load *Quill*, enter *"Files"* via the commands and press *I* for import, followed by th filename *"listing"* (without the exp). The listing will then be on a valid Quill file.

Program Notes

Line 1000 to 1040 Initialises screen and creates arrays for data. Up to nine programs can be placed on the menu. By omitting the commentary more could be displayed on screen.

Line 1060 to 1300 Reads data for titles and commentary from file called Boot data. Not all nine possible choices have to be filled.

Line 1320 to 1350 Reads keyboard for option one to nine.

Line 1360 to 1400 Loads and runs selected program.

Line 2000 to 2100 Creates data for title and description.

Line 3000 to 3050 Procedure for data input.

Line 3100 to 3130 Procedure to change data.

Line 4000 to 4060 Procedure to save data.

```
99 :
100 REMark Boot programm
101 :
102 REMark wafer must be in drive 1
999 :
1000 REMark display
1001 :
1005 MODE 4:CSIZE 2,1:PAPER 0:INK 7
1010 PRINT'                BOOT Autoload'
1020 CSIZE 1,0
1030 DIM title$(9,16)
1040 DIM description$(9,80)
1060 OPEN←IN £6,mdv1←boot←data
1070 FOR n=1 TO 9
1100  INPUT£6,title$(n)
1110  INPUT£6,description$(n)
1130  CSIZE 2,0:AT n*2,14: PRINT n! title$(n)!n
1140  CSIZE 1,0: PRINT description$(n)
1300 END FOR n
1310 CSIZE£0; 2,0:PRINT£0;'press number key for required
program':CSIZE £0;0,0
1320 REPeat inputkey
1330  LET n$=INKEY$(-1):LET n=CODE(n$)
1340  IF n<58 AND n>47 THEN EXIT inputkey
1350 END REPeat inputkey
1360 CLS:CSIZE 2,1:AT 5,8:PRINT "loading ";title$(n$)
1400 LRUN 'mdv1←'&title$(n$)
1999 :
2000 REMark create datafile
2001 :
2020 DIM title$(10,16)
2040 DIM description$(10,80)
2050  FOR n=1 TO 9
2060  input←data
2070  IF title$(n)=''THEN EXIT n
2080  END FOR n
2100 PRINT£0;'Change any data? ':LET a$=INKEY$(-1):IF a$=
'y' OR a$='Y'THEN change:GO TO 2100
2110 save←data
2200 STOP
2999 :
3000 REMark data input
3010 DEFine PROCedure input←data
3030 PRINT£0;n!'program name-';:INPUT title$(n):PRINT
n!title$(n)
3040 PRINT£0;n!'comment- (80 chars)'\:INPUT description$
(n):PRINT title$(n)
3050 END DEFine
3100 DEFine PROCedure change
3110 PRINT£0;'input number to change ':LET n=INKEY$(-1)
3120 input←data
3130 END DEFine
3999 :
4000 REMark save data
4001 :
4005 DEFine PROCedure save←data
4010  DELETE mdv1←boot←data
4020  OPEN←NEW £6,mdv1←boot←data
4030   FOR n=1 TO 9
4040   PRINT £6, title$(n)\description$(n)
4060  END FOR n
4070  CLOSE£6
4080 END DEFine
4100 :
30000 SAVE mdv1←boot
```



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Signature

Not on your Nellie

A challenging word game (with elaphantine connections) for the Amstrad by ***Steve Lucas***

In this game you will be shown an anagram and will be asked to solve it. Each incorrect letter causes the mouse to move closer to Nellie the Elephant and thus will eventually scare Nellie away!

You can add extra data statements containing extra words, provided that the final data item in the list of questions is xxxx (see Line 940)

The number of incorrect guesses allowed is half the number of letters in the word plus two This can be changed in Line 690 (see *Rem* in Line 700)

Program Notes

10-30	select colours/mode
80-330	define characters
340-410	define graphics
420	titles
440	seed random number generator
450-470	initialise
480-510	define 3 stat windows
510	select background colours for windows
520-820	main control loop
530-610	shuffle word
610-680	graphics
770-810	draw mouse
830-940	data for anagrams
960-1040	win game
1050-1100	lose game
1110-1150	instructions

Variables

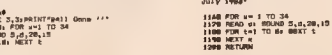
aa$	graphics
score%	holds score
x%, y%, z, y	counting loops
a$	read word
b$	holds anagram
c$	holds answer
a%	number of blank spaces to centre word
dd%	length of word
z	random number for shuffling
d	keyboard input

```
10 REM ** Nellie's Anagrams **
20 REM ** a game for the AMSTRAD CPC 464 **
30 REM ** by  Steve Lucas 1984 **
40 INK 0,0: INK 1,20: INK 2,26: INK 3,6
50 MODE 1: BORDER 22
60 REM ** define the character set for graphics **
70 SYMBOL AFTER 229
80 SYMBOL 230,0,0,0,216,244,254,36,72
90 SYMBOL 231,0,0,7,129,191,127,51,16
100 SYMBOL 232,0,0,0,0,0,28,62,127
110 SYMBOL 233,128,128,0,0,0,0,0,0
120 SYMBOL 234,127,127,0,0,0,0,0,0
130 SYMBOL 235,252,252,0,0,0,0,0,0
140 SYMBOL 236,1,1,0,0,0,0,0,0
150 SYMBOL 237,196,132,132,128,128,128,128,128
160 SYMBOL 238,31,31,31,31,31,31,31,31
170 SYMBOL 239,252,255,252,252,252,252,255,255
180 SYMBOL 240,96,96,96,96,0,0,0,0
190 SYMBOL 241,240,240,240,252,252,304,254,196
200 SYMBOL 242,247,3,1,0,0,0,0,0
210 SYMBOL 243,123,128,120,112,112,112,96,96
220 SYMBOL 244,248,248,248,248,248,248,248,248
230 SYMBOL 245,63,31,31,31,31,31,63,127
240 SYMBOL 246,0,0,128,224,244,224,244,248
250 SYMBOL 247,252,255,255,255,225,255,255,255
260 SYMBOL 248,255,250,255,255,255,250,255,255
270 SYMBOL 249,3,15,255,255,255,225,255,255
280 SYMBOL 250,240,255,127,191,191,223,255,255
290 SYMBOL 251,252,254,254,159,159,255,255,255
300 SYMBOL 252,31,63,63,63,63,63,63,127
310 SYMBOL 253,0,0,0,0,0,0,240,240
320 SYMBOL 254,0,0,0,0,0,0,251,251
330 SYMBOL 255,0,0,0,0,0,0,7,15
340 REM ** data for elephant **
350 RESTORE
360 DATA 255,254,253,10,8,8,8,252,251,250,249,248,247,246,
10,8,8,8,8,8,8,8,8,245,240,240,240,240,240,244,10,8,8,8,8,8,
8,8,243,242,240,240,240,240
370 DATA 241,10,8,8,8,8,8,8,8,249,9,250,9,9,238,227,10,8,
8,8,8,8,8,8,9,236,235,9,9,234,233
380 aa$="": FOR x= 1 TO 74: READ y
390 aa$=aa$+CHR$(y)
400 NEXT
410 aa$=STRING$(10,CHR$(8))+aa$
420 GOSUB 1120
430 REM ** random number set to random start **
440 RANDOMIZE TIME
450 RESTORE 830
460 score%=0: x%=INT(RND(1)*100)+1:FOR y=1 TO x%: READ a$
470 NEXT
480 WINDOW #1,1,40,1,10
490 WINDOW #2,1,40,11,18
500 WINDOW #3,1,40,19,24
510 PAPER #1,0 :PAPER #2,1: PAPER #3,2
520 WHILE h%<999
530 b$="":READ a$:a$=UPPER$(a$):c$=a$: REM ** c$=word :
b$= shuffled word : a$ used for shuffling
540 IF a$="xxxx" OR a$="XXXX" THEN RESTORE 830: READ a$:
 c$=a$
550 a%=(40-LEN(a$))/2 :REM ** adjust word to appear at
 centre of screen **
560 dd%=LEN(a$)
570 FOR x=1 TO dd%
580 z=INT(RND(1)*dd%)+1
590 REM ** shuffle word **
600 IF MID$(a$,z,1)<>" " THEN b$=b$+MID$(a$,z,1): LET
a$=LEFT$(a$,z-1)+" "+RIGHT$(a$,LEN(a$)-z) ELSE 580
610 NEXT x
620 CLS: PEN #1,3: PRINT#1:PRINT#1,aa$
630 CLS #2
640 PEN #2,0: PRINT#2: PRINT#2,"          The word is :-
650 PEN #2,3: PRINT #2:PRINT#2,TAB(a%);b$
660 CLS #3
670 PEN #3,0 : PRINT#3:PRINT#3,TAB(13);"Your attempt :-"
680 PEN #3,3:PRINT#3
690 s%=0:t%=0:u%=LEN(b$)/2+2: v%=1: w%=0
700 REM ** u% is used to set the number of wrong attempts
allowed to half the number of letters in the word +2...
you can adjust i to make it easier '
710 d$=INKEY$: IF d$="" THEN 710
720 d$=UPPER$(d$)
730 IF MID$(c$,v%,1)=d$  THEN LOCATE #3,a%+v%-1,5
:PRINT#3,d$: v%=v%+1  ELSE s%=s%+1 : GOSUB 780
740 IF v%=LEN(c$)+1 THEN t%=1
750 IF t%=1 THEN 950 ELSE IF s%=u% THEN GOSUB 1050
760 GOTO 710
770 REM ** draw mouse... to scare elephant **
780 PEN #1,2
790 LOCATE #1,2,6: PRINT #1,SPC(s%*3);CHR$(231);CHR$(230)
800 SOUND 1,478,20,15
810 RETURN
820 WEND
830 DATA umbrella,ample,wafer,vaseline,understanding,
transparency,toxicological,testimonial,succinct,ruffian,
reverend,proportional,pantograph,operetta,dissonance
840 DATA vehicle,petroleum,vapour,inhale,initiate,progress,
historical,dissonant,distraction,councellor,clarify,calyx,
assortment,eclipse,prayer,adept,liberty,sectional,twitter
850 DATA secondary,curriculum,development,research,grammar,
envelope,inflation,inlaid,languor,impetus,express,developer,
enlarger,vacuum,velocity,seasonal,musical,guitar,platinum,
future
860 DATA textile,photography,testimonial,primary,relation,
rehabilitation,pentagon,incense,contrite,admiral,united,
blazonry,tonsil,cleaver,honey,outsider,thumb,suitable,thrush
,pendulum
870 DATA literature,graduate,shoulder,turkey,sincerity,
denomination,democracy,purulent,retrospective,supercilious,
```

Continued over the page

```
apres,temperature,violation,eusserge,seedling
880 DATA navigate,france,damsel,brocade,attorney,stomach,
renewal,mechanism,lingual,jumper,litmus,prescription,
airport,fumigate,infestation,foreboding,feudal,duodenum,
contrast
890 DATA numeral,navigation,meridian,ligament,magnetism,
leash,jasmine,insect,impassioned,humour,general,distraction
,composition,discordance,sentence,overt,tuneful
900 DATA sensational,tangerine,wraith,gerontology,wombat,
trinity,suspicion,sequester,repellent,assortment,adenoids,
chocolates,conciliation,unwind,hotel,parliament,reason,
plague,penumbra,commuter,orchid
910 DATA revealed,theocratic,sociable,layer,blister,
disintegrate,irrational,peccadillo,sentimental,cabaret,ascent
,explanation,christian,greenhouse,ordinary,magazine,death,
ionosphere,microscope,gardening,happiness,philosophy
920 DATA anagram,philately,physical,bureaucracy,numismatics,
archaeology,industrial,printing,advanced,layer,cassette,
recording,typewriter,album,keyboard,display,modular,carpet,
kitchen
930 REM see you can add extra words in data statements
here ...but make sure that the final statement is xxxx
940 DATA xxxx
950 CLS:PRINT aa$
960 PEN 3:LOCATE 3,3:PRINT"Well Done !!"
970 RESTORE 1110: FOR x=1 TO 34
980 READ d: SOUND 5,d,20,15
990 FOR t=1 TO 10: NEXT t
1000 NEXT x
1010 PEN 1: LOCATE 2,22: PRINT"Press <Space Bar> for
another game ."
1020 f$=INKEY$: IF f$<>" " THEN 1020
1030 RUN
1040 END
1050 CLS #3 :PEN #3,0: LOCATE #3,15,2: PRINT #3,"You Lose !"
1060 LOCATE #3,1,4:PRINT#3,"It was :-"
1070 PEN #3,3 :LOCATE #3,16,4: PRINT#3,c$
1080 PEN #3,0: LOCATE #3,3,8: PRINT#3,"Press  <SPACE BAR>
for another game"
1090 g$=INKEY$: IF g$<>" " THEN 1090
1100 RUN
1110 DATA 239,239,213,239,190,239,239,213,190,179,159,239,
239,213,190,179,159,239,239,213,239,159,239,142,239,127,
239,127,142,159,179,190,213,239
1120 RESTORE 1110 :CLS: LOCATE 12,2: PEN 3: PRINT"Nellie's
Anagrams"
1120 PEN 1:PRINT:PRINT:PRINT aa$
1190 PRINT:PRINT:PRINT:PRINT:PEN 2:PRINT"In this game,
you must try to solve the anagram before the mouse scares
nellie  the elephant away !"
1130 PRINT:PRINT:PRINT:PEN 1:PRINT"by Shane B. Lucas
July 1984"

1140 FOR x= 1 TO 34
1170 READ d: SOUND 5,d,20,15
1180 FOR t=1 TO 8: NEXT t
1190 NEXT x
1200 RETURN
```



Top of the Charts

Bnng a little colour into your statistics with this histogram construction program for the BBC B by ***Neil Bernea***

The representation of statistical data, especially in a graphically appealing form, is useful in both the business and home environments

This program allows the user to enter data (along with headings) which is then produced in colourful Mode 1 graphics as a histogram. The routine also includes automatic re-scaling of numbers and labels on the axes

With the Rem statements and structured programming techniques used, the listing should be quite easy to follow



Program Notes

Procbar	Main bar graph routine
Procbig	Prints titles
Procrescale	Re-scales all data
Proclabel	Prints title and labels
Procnumber	Numbers axis
Procborder	Draws borders and axis
Procdrawbars	Draws bars
H	Used for titles
ID	Number of pieces of data
barscale	Determines scale
high	Highest item of data
C F K K1 T, Q, W, Z	For Next variables
A$, X, C	Parameters in Procbig
P$	Validates input
T$	Title of graph

```
10 REM ******************************
20 REM ********* Charts **********
30 REM ********* Neil Barnes *****
40 REM *Bishop Rawstorne School    *
50 REM *Croston,Lancashire         *
60 REM *& the 'O'level hopefuls    *
70 REM ******************************
80MODE7
90 REM * Turn cursor off *
100 VDU23;8202;0;0;0;
110barscale=1
120 REM * Titles *
130 VDU23,224,255,255,255,255,255,255,
255,255
140FORH=0TO3:PRINTTAB(0,H)CHR$157:NEXT
150PRINTTAB(14,1)CHR$141CHR$132"CHARTS"
160PRINTTAB(14,2)CHR$141CHR$134"CHARTS"
170VDU31,1,6,129:PRINT"Designed and
written by";:VDU131:PRINT"NEIL BARNES":
VDU31,13,8,130:PRINT"(C) 1984"
180VDU31,1,10,134:PRINT"This program
enables the user to":VDU134:PRINT"
represent statistical data in a":VDU134
:PRINT" colourful and interesting way."
190 VDU31,6,20,133:PRINT"Press SPACE BAR
to continue":REPEAT UNTIL GET=32
200 PROCbar
210DEFPROCbar:CLS:PROCbig("BAR CHART",
12,134):PRINTTAB(14,3)"=== ====="
220VDU31,1,5,129:PRINT"How many items of
data do you wish to":VDU129:PRINT" re
present";:VDU131:PRINT"(1-20)":INPUTTAB
(19,6)ID
230IFID<1ORID>20THENPRINTTAB(0,6)SPC(40)
:SOUND1,-15,200,2:GOTO220
240DIMchart(ID)
250high=0
260FORW=1TOID
270 REM * Enter data *
280VDU31,1,8,130:PRINT"Enter value of
bar ";W
290INPUTTAB(10,9)chart(W)
300P$=STR$((chart(W)))
310IFASC(P$)<49ORASC(P$)>57THENPRINTTAB
(0,9)SPC(40):SOUND1,-15,200,2:GOTO290
320IFchart(W)>highTHENhigh=chart(W)
330IFhigh>20THENbarscale=INT(high/20)
340SOUND1,-15,180,2
350PRINTTAB(0,9)SPC(40)
360NEXT
370VDU31,1,10,133:PRINT"Enter title of
chart":INPUTTAB(24,10)T$
380IFLEN(T$)>8THENPRINTTAB(0,10)SPC(40)
:SOUND1,-15,200,2:GOTO370
390 VDU23;8202;0;0;0;:PRINTTAB(2,18)
"Press  F  to end viewing of graph":
PRINTTAB(6,23)"Press SPACE BAR to cont
inue":REPEATUNTILGET=32
400 PROCrescale
410 VDU22,1:VDU23;8202;0;0;0;
420 REM * Call major procedures *
430 PROClabel
440 PROCnumber
450 PROCborder
460 PROCdrawbars
470DEFPROCbig(A$,X,C):FORQ=0TO1:PRINT
TAB(X,Q+1)CHR$141CHR$C A$:NEXT
480ENDPROC
490DEFPROCrescale
500 FORZ=1TOID:chart(Z)=INT(chart(Z)
/barscale):NEXT
510 ENDPROC
520 DEFPROClabel
530 COLOUR1
540 PRINTTAB(INT((36-LEN(T$))/2));T$
550 ENDPROC
560 DEFPROCnumber
570 REM * Set printing fields *
580 @%=1
590 FOR C=27 TO 3 STEP-3
600 PRINTTAB(0,30-C)INT(C*barscale)
610 NEXT
620 ENDPROC
630 DEFPROCborder
640 FOR T=3 TO 29:PRINTTAB(3,T)CHR$224
:NEXT
650 FOR T=4 TO 39:PRINTTAB(T,29)CHR$224
:NEXT
660 ENDPROC
670 DEFPROCdrawbars
680 REM * Draw bars on screen *
690 FOR K=1 TO ID
700 FOR K1=1 TO chart(K)
710 COLOUR2:PRINTTAB(3+K,29-K1)CHR$224
720 NEXT
730 NEXT
740 F=GET:IF F=70 THEN CLS:RUN ELSE
GOTO740
```



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Commodore 64



The first ever 7-part arcade adventure serial, each part is an adventure in its own right. An incredible unexpected event in the final screen leads to a mystery prize for the winner of the Firequest Challenge.



Open Forum

Open Forum is for you to publish your programs and ideas. Take care that the listings you send in are all bug-free. Your documentation should start with a general description of the program and what it does and then give some detail of how the program is constructed.

Equation Solver

on BBC

This program calculates various information about a projectile, and should be useful to anyone studying 'A' level Mathematics.

The initial speed and angle of projection is input, and the program will calculate the time of flight, horizontal range, the maximum possible range for a given initial speed, and the maximum height reached. Standard projectile equations are used in the program, and these are in lines 180-210

```
10 g=9.81
20 @%=&0102020A
30 REPEAT
40 CLS
50 PROCgetinfo
60 PROCcalculate
70 PROCprintout
80 PRINT''"   Another set of readings (Y/N) ?"
90 UNTIL GET$<>"Y"
100 PRINT
110 END
120 DEF PROCgetinfo
130 PRINT'"   Enter values in metres & degrees"
140 INPUTTAB(0,4)"What is the speed of projection ? "u
150 INPUTTAB(0,6)"What is the angle of projection ? "theta
160 ENDPROC
170 DEF PROCcalculate
180 timeofflight=(2*u*SIN(RAD(theta)))/g
190 range=(u*u*SIN(RAD(2*theta)))/g
200 maxrange=u*u/g
210 maxheight=(u*u*(SIN(RAD(theta))^2))/(2*g)
220 ENDPROC
230 DEF PROCprintout
240 PRINT''
250 PRINT"The time of flight is ";timeofflight;" secs"
260 PRINT'"The horizontal range is ";range;" m"
270 PRINT'"The maximum range possible is ";maxrange;" m"
280 PRINT'"The maximum height is ";maxheight;" m"
290 ENDPROC
```

Equation Solver
by Robert Turner

Baud Walk

Warning word

A note of caution this week about any modem users who are planning to attempt to use some of the more commercial and 'professional' databases.

There are many hundreds of different databases accessible via modems, ranging from financial resources, through to patent, scientific and medical research.

A regular reader of Baud Walk, Harvey Nyman of Harrow in Middlesex, points out that the costs of some of these services is very high, with modest usage clocking up bills of around £150 a month.

If users do want to delve more deeply into these types of databases, I recommend you talk to the Online Information Centre, based in London (tel 01-430 2502).

Searching techniques on host systems like *Dialog* involve professional training, otherwise searches can be expensive and inconclusive. Certainly these types of databases will develop a breed of Information Brokers, skilled at extracting the maximum amount of information at the cheapest possible cost. When you consider some databases charge upwards of £1 a minute, it could turn into big business.

Next week I will be publishing the numbers of the latest services to come to my attention. If you know of any, please drop me a line here at *PCW*, and also detail the types of services offered plus any costs associated with them where applicable.

A series of books about baud walking are being published this month by Century Communications and one, in particular, promises to be very interesting. Entitled, *Talking to the World with your Home Computer*, it is written by an acknowledged bulletin board expert John Newgas, who operates what is probably the UK's biggest board.

John's book will appeal both to the beginner and the hacker who wants to get to grips with the detailed technicalities of hooking up.

It usefully explains methods used for making micros communicate with one another and tells you how to set up your own bulletin board service. More details when I get a review copy — are you listening, Century?

Baud Walk is a new weekly column with news on networking, databases, reviews of modems and software and points of contact for information.

Any readers with experience of networking are asked to send their experiences or news of services to Robin Wilkinson, Baud Walk, *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2R 3LD.

He can also be contacted on Prestel mailbox 019963727

Open Forum

Tape Player

on Oric

This program enables a tape player to be tested and the volume level to be set correctly. The program sets up a screen display, largely of 'U's which were chosen because their Ascii code is hex 55, binary 01010101.

The screen is treated as a block of memory and saved to tape, fast at first followed by slow. The block of memory may then be loaded by typing *Cload*". Whilst the loading takes place the characters will be brought to the screen and, therefore confirm that the cassette is working. This allows the volume control to be adjusted to the optimum level.

Line 1160 restricts the *Print* statements to two lines and thus allows instructions to be printed on the screen without disrupting the display. The two variables used are general purpose numeric variables. In both programs the *Rem* statements are not subject to *Gotos*, etc, and may, therefore, be omitted.

```
995 REM****************************
996 REM* PROGRAM TO SET VOL LEVEL  *
997 REM*  WHEN LOADING FROM TAPE   *
998 REM*  By Barbara Prowse 1984   *
999 REM****************************
1000 CLS:PAPER7:INK0
1020 PRINT:PRINT
1040 GOSUB2000
1060 FORG1=1TO16
1080 FORG2=1TO37:PRINTCHR$(#55);:NEXTG2:PRINT
1120 NEXTG1
1140 GOSUB2000
1160 DOKE623,2:CLS
1170 PRINT"Press ANY KEY for FAST SAVE":GETG$:PRINT"Saving (fast)..
."
1180 CSAVE"",A48120,E49120:CLS
1200 PRINT"Press ANY KEY for SLOW SAVE":GETG$:PRINT"Saving (slow)..
."
1220 CSAVE"",A48120,E49120,S:DOKE623,27
1240 CLS:END
2000 PRINT"************************************"
2020 PRINT"* PROGRAM TO TEST TAPE VOLUME LEVEL *"
2040 PRINT"*        By Barbara Prowse 1984     *"
2060 PRINT"************************************"
2080 RETURN
```

Tape Player
by Barbara Prowse

Microradio

GW6JJN

Radio waves

Radio Teletype or RTTY is still the most popular subject in the letters to Microradio.

First of all just what is RTTY? Simply, it is a means of sending written information over the radio waves, rather like telex. In the old days in order to send or receive RTTY, large mechanical units were used which were both expensive and noisy. Now, with the advent of the home computer, sending or receiving RTTY is fairly simple. RTTY is transmitted by means of a code which represents letters and figures called the Murray-Baudot code.

Radio Teletype is the means by which many radio amateurs communicate across the world as well as through satellites. Other organisations using RTTY are the world's newsagencies such as Reuters, Tass and Associated Press. Various commercial organisations use this means of communication as well as weather stations both manned and automatic around the world.

There is certainly no shortage of RTTY stations on the airbands and the biggest advantage of using radio to send and receive data is that the airwaves are free, which is more than can be said for the telephone lines. The kind of radio receiver that is required for radio teletype reception is either an amateur or general coverage receiver. It needs to be able to receive short-wave bands between one and 30 megahertz. RTTY can also be heard on VHF radio around 144 megahertz.

In addition to the radio receiver and the computer, you will need an interface/terminal unit to connect the computer to the radio. There is one exception to this, the Dragon. Partly due to the construction of the Dragon, but mainly due to clever programming, Grosvenor Software of 22 Grosvenor Road, Seaford, Sussex, provides a complete RTTY package for the Dragon which will put you on air with software alone.

The interface/terminal unit is necessary for most computers to do two important things. The first is to convert the computer's parallel way of talking to things to the serial form needed for general communication to the outside world. The second thing that such a unit does is to convert the computer's electrical impulses to audible tones that can be transmitted. It takes care of the baud rates concerned and generally tidies up the signal.

Ray Berry GW6 JJN

This series of articles is designed for radio and microcomputer enthusiasts alike. If you have any queries that you want answered, hints and tips to share, or topics that you would like to see covered, write to Ray Berry, Microradio, *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2R 3LD.

Wipe Out

on Vic20

This is a game for the unexpanded machine. It involves moving your man around the screen, wiping out all the blocks before your time runs out. After each new wave, you have five more blocks to wipe out but you still only have 40 seconds.

Program Notes

0-9	Sets up variables and displays title page
10-50	Prints up blocks
70-71	Gives warning sound
80-450	Main loop
460-490	Routine after each wave
10000-1060	End of game routine
10000-10070	Instructions

Variables

K = Number of blocks
W = Waves
TI$ = Time
A = Score

```
0 REM******************
1 REM**  WIPE OUT  ***
2 REM**     BY     ***
3 REM**KEVIN WRIGHT***
4 REM******************
5 REM*****ALL REMS CAN BE LEFT OUT*********
8 K=20:W=1
9 GOSUB10000
10 POKE36879,25:X=20:POKE36878,15:TI$="000000":A=0:POKE198,0:B=1
20 PRINT"□":POKE650,255
30 FORB=BTOK:R=INT(RND(1)*490)+7686
40 IFPEEK(R)=160THENB=B:GOTO30
41 IFR=7779THENB=B:GOTO30
50 POKE36874,200:POKER,160:POKER+30720,(INT(RND(1)*6)+2):POKE36874,0:NEXT
70 FORM=1TO2:POKE36874,240:FORH=1TO300:NEXT:POKE36874,0:FORB=1TO200:NEXT:NEXT
71 TI$="000000":T=7779
80 PRINT"■";TI$:IFTI$>"000040"THEN1000
81 IFA=KTHENPOKE36876,0:M1$=TI$:GOTO460
90 POKET,81:POKET+30720,0
400 PRINT"■"TI$:IFTI$="000040"THEN1000
401 POKE36876,0:GETH$:IFH$=""THEN400
410 IFA$="P"THENPOKET,32:T=T-22:IFPEEK(T)=160THENPOKE36876,INT(RND(1)*70)+170:A
=A+1
411 IFT<7690THENT=T+22:GOTO80
420 IFA$="."THENPOKET,32:T=T+22:IFPEEK(T)=160THENPOKE36876,INT(RND(1)*70)+170:A
=A+1
421 IFT>8185THENT=T-22:GOTO80
430 IFA$=";"THENPOKET,32:T=T+1:IFPEEK(T)=160THENPOKE36876,INT(RND(1)*70)+170:A=
A+1:GOTO80
440 IFA$="L"THENPOKET,32:T=T-1:IFPEEK(T)=160THENPOKE36876,INT(RND(1)*70)+170:A=
A+1:GOTO80
450 GOTO80
460 POKE198,0:POKE36879,254:PRINT"□":Z$="■YOUR TIME WAS "
461 FORT=1TO14:POKE36874,250
462 PRINT"□"LEFT$(Z$,T):FORH=1TO100:NEXT:POKE36874,0:NEXT
463 PRINT"■■■■■■■■■■■■■■"M1$
467 PRINT"■■■■"
468 V$="HIT A KEY FOR NEXT":M$="         WAVE"
469 FORT=1TO12:POKE36874,250
470 PRINT"□"LEFT$(V$,T):FORJ=1TO100:NEXT:POKE36874,0:NEXT
471 PRINT"■":FORT=1TO12:POKE36874,250
472 PRINT"□":LEFT$(M$,T):FORG=1TO100:NEXT:POKE36874,0:NEXT:POKE198,0
480 WAIT198,1
490 K=K+5:W=W+1:GOTO10
500 GOTO480
1000 PRINT"□":POKE36879,254
1010 FORT=15TO0STEP-.1:POKE36878,T:POKE36877,170:NEXT
1020 PRINT"■■■■HARD LUCK...YOUR TIME RAN OUT."
1021 PRINT"BUT YOU LASTED FOR "W;"  WAVES"
1022 PRINT"ANOTHER GAME (Y/N)"
1030 GETA$:IFA$=""THEN1030
1040 IFA$="Y"THENPOKE36877,0:RUN
1050 IFA$="N"THENSYS64802
1060 GOTO1030
10000 PRINTCHR$(14):PRINT"□":POKE36879,25:
10010 PRINT"■[illegible]"
10020 PRINT"■■HIT ALL THE COLOURED  BLOCKS BEFORE THE TIMERUNS OUT."
10030 PRINT"■■MOVEMENT:■■■ - P■■■■■■■  - DOWN■■■■■■■■■L  - LEFT"
10040 PRINT"■■■■■■■■■■;  - RIGHT"
10050 PRINT"■■■HIT A KEY TO PLAY":POKE198,0
10060 WAIT198,1
10070 PRINTCHR$(142):RETURN
20000 REM**SAVE THIS  PROGRAM BEFORE RUNNING IT!!!**
```

Wipe Out
by Kevin Wright

Open Forum

Character set on QL

This short utility produces a large version of the QL character set. Note that the 'to the power of' sign has lost its tail on my printer and appears like a Chinese hat.

```
90 REMark ** E.A.Duncan-Dunlop
1 DAN-Y-LAN ABERKENFIG BRIDGEND
MID GLAM CF32 9AB
100 MODE 4 :CSIZE 3,0
110 LET sv = 41443
120 REPeat loop
130 LET sv=sv+1
140 LET num =PEEK(sv)
150 AT 19,10 : PRINT CHR$(num)''sv''num
160 binary
170 LET s=sv-40000
180 LET v=s MOD 9
190 IF v=1 THEN PRINT CHR$(10)
200 END REPeat loop
210 DEFine PROCedure binary
220 FOR n=7 TO 0 STEP -1
230 PRINT CHR$((num DIV 2^n)+31)'
240 LET num=num MOD 2^n
250 NEXT n
260 END DEFine
```

Character Set
by Duncan Dunlop

Arcade Avenue

Cheat mode

You will never guess what we've actually had some letters from people who have computers other than Spectrums! Let's celebrate with a couple of desperate pleas for help. First of all from Laurence Moran of Dublin. "Dear Tony, I have a CBM 64 and at the moment I am playing *Chuss Miner*. It's a brilliant game. It took me a long time to get past the screen called 'Horace goes Walkabout' and I have just managed to reach screen 14 — 'The Observatory'. Do you or your readers know any *Pokes* to get infinite lives or to eliminate all the monsters as in *Jet Set Willy* — I would be very grateful." So how about it — get hacking you lot and let's have some Interceptor *Pokes*. Incidentally Interceptor, who churn out great Commodore games at an incredible rate of knots, have lately started to produce programs for the Spectrum. They started with a couple of pretty good adventures and have now released the odd arcade game, such as *Tiler*, which is good news. Hopefully we'll soon see some games of the quality of *Arabian Nights* (unfortunately minus the excellent music) for this machine — certainly a company to watch.

Along similar lines comes a letter from Terry Ireland of London. "I recently purchased Alligata's *Blagger* for my BBC B. Having played for several days I have only reached as far as the fifth screen — without much hope of getting any further. Can anyone tell me some cheat details for the program — ideally extra lives. How on earth you can score the 10,000 necessary to get just one extra life I will never know." Ironically, Terry, I have got some cheat tips for Blagger this week — but it's for the wrong micro! Stephen Bailey of Carterton has found out how to choose which screen you start on with the Commodore version (but it might be worth trying a similar approach on the BBC). "First you have to tap the space bar (the screen shouldn't change but the lives should change to 5). Then type any of the following keys — *Ctrl A* to *Ctrl Z* respectively will put you on screens 2-27. *Ctrl* and Square bracket ([) gets you onto screen 28. *Ctrl* →← puts you onto screen 29 and *Clr Home* puts you onto screen 30."

Staying with the Commodore, Graham Mash of Wakefield has the following high scores and tips: "*Aztec Challenge* by Cosmi (sold by U.S. Gold in this country) — phase 3, level 4. *Arabian Nights* by Interceptor — level 5 (where I am stuck). *Trollie Wallie* by Interceptor — 25 objects. *Son of Blagger* by Alligata — 157,000 (57 screens). *Guardian* by Alligata — 319,450 (21 attack waves). I find *Guardian* is better on the keyboard. If you find it boring shoot all the humans and it really hots up! (A bit inhumane, don't you think Graham?) If you type '*Goats*' on the title screen of *Revenge of the Camels* then 'cheat mode' appears and any key press will move you to the next level.

"Incidentally the speech on *Arabian Nights* can be reproduced exactly with a program called *Big Mouth 64* and this speech can be included in your Basic programs. Finally, beware of Activision's *Decathlon*. I've already broken two joysticks but I still play it."

And now to a different computer, Gary Ardern of New Mills, Cheshire has scored 1,081,880 on the 61st level of *Chuckie Egg* on his Dragon 32. He suggests that "if you get on the lifts jump up and down, then when you reach the top you will fall down to the next lift." (But why?)

Finally this week, I have my own plea for help. Can anyone tell me how to get past screen 14 of *Monty Mole* from Gremlin Graphics, the second screen with the overhead pipes, as I am faced with an impenetrable barrier and get killed when I touch the railway lines. Where am I going wrong?

Tony Kendle

The Arcade Corner is a new section for anyone who enjoys playing arcade games. If you have any comments, from playing tips on difficult games or programs you'd particularly like to praise (or blame!) then write to Tony Kendle, Arcade Avenue, *Popular Computing Weekly*, 12-13 Little Newport Street, London WC2R 3LD

Tony Bridge's Adventure Corner



Redesigned Quill

Last week, I looked at some new adventures, and there are still many left to look at. I found the *Quill* adventures to be extremely good — it seems that the Quill is undergoing the same transformation as most software, a "honey-moon" period, when authors gingerly feel the temperature of the water, followed by a period when imagination goes hand-in-hand with technical expertise. Thus, the first *Quill'd* programs took the program at face value, using the basic facilities. The authors of the programs recently released are delving deeper into the secrets of the *Quill*, to bring us ever better adventures.

Ross Harris, trading as Anubis Software, sent me, a long time ago, a *Quill'd* adventure called *The Dunshalt Donut*. The intriguing name refers to a nearby village in Fife, Scotland, and many of the characters mentioned in the adventure will be recognisable to people living in the neighbourhood. I'm mentioning it now for two reasons — the first is that Ross has since repackaged the game, and it now comes complete with a little book. It's only ten pages, but is very funny and stylish, as well as giving the run-down on what you have to do.

The adventure starts in a house, in which there are several strange locations (including the bathroom, which features a smell "as if something had died here recently"!) and several objects. Among the puzzles are: a toilet bowl which must surely hold some awful secret and Huckle the Dog — there is a tin of dog meat in the kitchen as well as a leg of lamb, one of which must surely keep him from biting you, but which one I've not yet found out. The biggest puzzle is how to get out of the house — I managed once, but can't remember how I did it! Moral — make notes! There's a lot of atmosphere here, even in these few opening locations, and there's not a single Troll or Goblin in sight.

The second reason I mention that adventure here, is that the character set has been very tastefully re-designed, and the program looks much nicer than the usual Spectrum *Quill'd* game. Ross has recently offered *The Donut* for sale at a very reasonable £2.50, on Micronet, so for those of you who are able, buy it now. There is a problem, of course, in that he hasn't worked out how to get the book through the phone lines yet. Anubis Software, 36 The Riggs, Auchtermuchty, Fife.

The Key to Time is the final Quill program that we'll look at for the moment! This one comes from Lumpsoft (where do they get these names?), of 44 New Briggate, Leeds, Yorks. This comes in the usual cassette box (I know that *The Quill* allows many individual authors to write and market their own machine-coded game, but I sometimes wish a little more was offered to the buyer). The outstanding feature of this *Quill'd* adventure is not the packaging, as we've seen, but the contents of the game itself.

The scenario itself is pretty mundane, and rather familiar: "The Time Storms have affected the ability of the Doctor's current persona to operate properly. The Time Lords have authorised that control is passed to you..." In the adventure, you must guide your earlier persona by sending him messages through the "Time Lord Telepathic Controller", cunningly disguised as Sinclair Spectrum.

So far, all is pretty standard *Quill* stuff but the display is different from the usual fare. The first thing you'll notice is that messages (for example, the Inventory) scroll up from the bottom of the screen, rather than suddenly appearing mid-screen, as is usual. Then, comands are kept on-screen, so that previous mistakes can be studied. The Help command, usually a source of rather sarcastic comments of the "You're on your own, dummy" variety, is, like much of this adventure, rather more imaginative. Ask "Help Dalek", for example, and a little fact-sheet, like the *Hitch-Hiker's Guide*, scrolls up to give you interesting information. The adventure itself is of the usual object-and-puzzle variety, but all the bells and whistles tacked on to it make an absorbing, colourful and welcome change from the usual *Quill'd* effort.

Staying with the Spectrum for a while longer, many of you will now be hunched over the final part of *The Ket Trilogy* from Incentive Software of Reading. You'll know that the prize for the first person to complete the adventure is a video recorder worth £400, which can't be bad. The final part is called, simply, *The Final Mission*, and features the fast loading and protection system of power *Powerload 48*. Ian Andrews, worried that some players may have given up at the last hurdle, has passed on a hint to me, so that *Temple of Vran*, the second part, may be finished. You must remember that Wizards are totally magical — therefore, you *must* have the four magical items (Hat, Robe and so on), and *Drop* everything else. Then you will get the next part of the sentence, and be able to progress to the third part, and your chance at that video.

I spoke last week of a couple of new adventures for the QL, which reminds me of a letter I received some time ago, from Tony Lambert, of London SE9. He was asking for help in a QL adventure called *The Pawn*. How does he capture the Horse with no legs? And where does the Guru keep his rice? The Horse sounds like a Knight to me, and as for the Guru — who can tell where a Wise Man's grains are? But, unless this is a very elaborate joke, I hope someone else can give some help.

The Dragon hasn't been well served with adventures, particularly since the troubles with Mettoy/GEC but one of the better programs was *Ring of Darkness*, from Wintersoft. They have recently released the follow-up called *Return of The Ring*. It is more of a role-playing game than a traditional adventure, in that the player can set up his own character and guide him through many adventures and perils. It features several scenarios, the planet, the forest moon and a final quest that is a 64-location adventure in its own right. Set on the mysterious planet of Ringworld (nothing to do, the authors say, with Larry Niven), the program features sophisticated 3-dimensional graphics, and machine-code arcade sequences.

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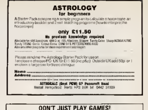
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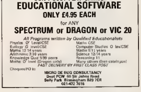


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Peek & Poke



Vic20 software

R Edwards Of Fords Heath, Shropshire, writes.

Q **Do you know of a club from which I could hire software for the Vic 20, preferably in the Midlands?**

A Most of the software hire organisations seem to ignore the Vic20 these days, preferring to concentrate on the Spectrum and the Commodore 64. If you wish to hire (not copy) software tapes then you might find that your local computer club is a good place to start. I must confess that I get a little uneasy when I see adverts for the software hire companies — if an individual attempted to do this he would probably be threatened with dire punishments.

Constant hi-score

R H Edwards of Port Talbot, West Glamorgan, writes:

Q **I am writing to find out if you can answer a query. I would like to know if it is possible to install a permanent high score table into the games I buy. Something like those found in real arcade machines. I would also like to know if any software houses take ideas for games, I get quite a few but do not have the skill to work out a program for them.**

A Unless you have a disc system the idea of a permanent high score table is but a dream I am afraid. Apart from modifying the programs concerned (which is probably no easy task in any case) you would have to re Save the program when you had finished using it (so that the latest high score table was retained for next time).

If you have an original idea for a game then I suggest that you send an outline of it (not too much detail) to one of the larger software houses (go by reputation, not by the machine they write for) and ask them whether they are interested in using you as a games designer. Your other option would be to use a games designer program yourself to build up your idea and send a completed 'mock up' of your work to a software house, again with a view to them using you as a designer. However, don't get your hopes up too high — software companies must get hundreds of ideas sent in every day.

Quickshot joysticks

Dilip Bhadresa of Wembley, Middlesex writes:

Q **For my birthday I received a pair of Quickshot joysticks for my Dragon 32. But I already have two joysticks for my Dragon. Since I already have a 48K Spectrum, I also got a Kempston joystick interface. Now I have four joysticks for my Dragon and one joystick interface for my Spectrum. I want to change the DIN plug on the joysticks to a 'D' plug so that I can plug it into the interface. Could you please, if possible, tell me how to go about this?**

A The simplest advice is to take your joysticks into a specialist computer shop and get them to make up your lead for you.

Round the track

Peter Francis of Grimsby, South Humberside, writes:

Q **I own a 48K Spectrum, and I was wondering whether there was a *Pole Position* game for it. If so, could you please tell me where I could obtain it from?**

A Nothing to match the Atari original, I'm afraid. But *Chequered Flag* from Psion lets you drive your racing car around a track although with no opposition — all you can do is challenge your own lap record.

Full Throttle by Micromega does let you both charge around the track and compete with other riders but it concerns motor bikes rather than racing cars. Both of these games are widely available.

Book mistake

Kevin Jenkins, of Coverton, Swansea writes:

Q **I own a 48K Spectrum and have just bought Melbourne House's *Spectrum Machine Language for the Absolute Beginner*. On page 23 (the decimal to hex converter) Line 150 will not enter. It is:**

150 *Let* S$ = *Chr$* ((n1 (=9) * (n1 + 48) + (n1)9) * (S$ + n1)) + S$

is this a fault of the computer or of the book?

A Quite simply your edition of the book has one mistake in it. The statement should read.

150 *Let* S$ = *Chr$* ((n1<= 9) * (n1 + 48) + (n1 > 9) * (55 + n1)) + S$

Golf ball printer

J C Nicholls of Birmingham writes.

Q **I am considering the purchase of a reconditioned golf ball printer. I have spoken on the telephone to someone in the company and have been assured that the machine will be compatible with both my Spectrum and my Sord M5.**

I have been quoted a price of £197, which is just within my price range, but I want to ensure that I do not find myself in the position of having to buy any extras to get the printer to work on both computers. Your remarks and advice on my proposed purchase would be much appreciated.

A The price you mention sounds reasonable for this type of printer. You will, unfortunately, almost certainly have to spend a little more money on interfaces (at least for the Spectrum). I suggest that you contact the company again and make sure that the printer comes complete with interface leads, and also find out what type of interface it requires (ie, whether it is Centronics compatible, or RS232).

Although there are other printers on the market within this price range they are not going to print as well as your proposed machine.

Recurring problem

Jason Kemp of Guildford, Surrey writes:

Q **I own a CBM 64. I enjoy using it but I keep on getting a recurring problem. My cassettes seem to be totally mucked up, although they are all originals. At first I thought it might be the cassette recorder but I demagnetised that several times before having to send it back. When I received a brand new one, that immediately played up. It has got so bad that the screen just displays 'Found' and a series of strange symbols before crashing. All the cassettes work on my friend's machine. Also if I manage to load a game and press the fire button the screen goes blank and returns to the cursor. Have you any idea what is wrong?**

A A fault such as this is very easy to diagnose. It can only be caused in one of three parts of your computer configuration. (a) the computer itself, (b) the tape recorder, (c) the cassettes.

As you say the cassettes load perfectly well on another machine, they cannot be the source of the problem.

You should try out your recorder on your friend's computer and see if it works OK. If so you will know that the computer should be returned — it is broken!

Is there anything about your computer you don't understand, and which everyone else seems to take for granted? Whatever your problem *Peek* it to Phil Rogers and every week he will *Poke* back as many answers as he can. The address is *Peek & Poke*, *PCW*, 12-13 Little Newport Street, London WC2R 3LD

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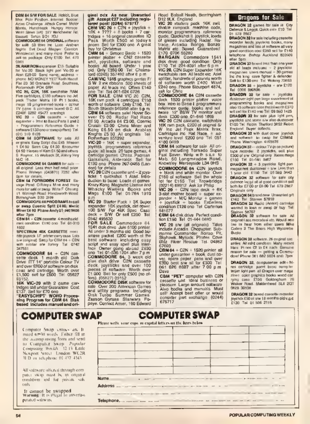
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COMPUTER SWAP COMPUTER SWAP

Computer Swap entries are limited to 30 words. Either fill in the accompanying form and send to Computer Swap *Popular Computing Weekly* 12-13 Little Newport Street London WC2R 3LD or telephone 01 437 4343

All software offered through computer swap must be in original condition and for private sale only

It cannot be swapped

Warning It is illegal to advertise pirated software

Please write your copy in capital letters on the lines below

Name ....

Address ....

....

Telephone ....

Wanted

1541 Commodore disk drive wanted. Will pay up to £120. Phone 01-487 0881 evenings or 01 302 7470 day. Ask for Paul

WANTED ATARI 800 will pay up to £85 or £110 for a working BBC model B. Tel Honiton 41456

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WANTED ZK printer will swap for eleven original Spectrum games including Trashman Rommel's Revenge Reversi, Mr Wong's Loopy Laundry Pool Backgammon. Early evenings only Phone Radnage 3250

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VIC-20 SOFTWARE wanted only originals Llamasoft's "Traxx" Anirog's "Xeno II" Anirog's "Slap Dab" Microantic's "Chariot Race" Commodore's Super lander and Moguls Great Adventure Pack" For late: Commodore's Mission Impossible £3 0658 622609

WANTED ORIGINAL Quill offer Escape Android II Adventure A and Redweed Phone (0703) 767580 after 4pm Also want certain progs at up to 60% maker's price want CBM64 progs as well

WANT A PENPAL? Just send name age sex, computer address and 50p for swap to Jestersoft 91 Ryde Park Road Rednal Birmingham B45 8RD

WANTED 6 **CHANNEL** FM radio control outfit in exchange for Video Genie complete with all leads s/w manuals built in cassette Stevenage evenings (0438) 720521

ATARI 1020 colour printer + any Atari disk drive preferably 1050 (after 5pm) Tel David Ringate 43850

WANTED — COMPUTER Penpal Write to Barry Baker 23 Jubilee St, Newark, Notts NG24 4DA. Tel (after 4) 0636 78108

WANTED ZX 81 printer interface for a Commodore 64 + software to run interface Ring Swansea 71482 or write Jones, 74 Heol Cefni Caemawr Morriston Swansea.

WANTED CBM 1541 disc drive prefer it still under guarantee Stephen Rayner 15 Welbeck St Abbey Hey M/CR 18

WANTED 1K ZX81 + MANUALS + leads Must be working perfectly £20 Also 16k RAM pack (non Sinclair) £10 Write to Derek Scott 28D Harden Place Hawick Roxburghshire Scotland

WANTED — LORDS Of Midnight by Beyond for my fees H U R G Steven Swindells 6 Park Avenue Poynton Cheshire

SPECTRUM PENFRIENDS in any town in England wanted Girls and boys ages 13 to 18 Will swap tips and hints Write to Lee Fraser 4 Newhall Mount, Bradford Yorks BD8 1DQ

WANTED 48K SPEC Swap trains set or buy it Tel Leicester 606265 under £100 to buy

WANTED 1541 DISK drive for C64 Phone 031 668 5203 after 8 30pm any reasonable price paid

For Sale

FOR SALE Currah speech unit. Price negotiable. As new in presentation box with manual and tape. Will accept £20. Please phone Staines 57086 and ask for Farley. Hurry!

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WILLIAM STUART three channel sound board with two 8-bit I/O ports. Suits all ZX80 81s. Complete with all necessary software V g c cost £29 30 Sell £21 00 ono Phone David on Maidstone 26861

OPUS 100K disc drive with leads manuals and utilities disc six weeks old £180 00 ono 48k Spectrum with software worth £60 £90 00 Tel 0865 243891 ext 6018 (Richard)

EPSON HX20 with micro cassettes £330 ono Printer Brother EP22 typewriter RS232 interface £90 ono Tel 01 7339861

SHARP MZ80K 48K CPU integral screen + cassette £200 ono Tel Swansea 0792 851392

LYNX 48K as new. Hardly used. In s/w books. Sell £100 Tel 01527 8385

CURRAH MICRO speech, 2 months old excellent condition. Sale at £23 ono Phone Vince on 01 SW 2931 bear 4 30

ORIC I 48K 5 months old. Hardly used due to loss of interest. As new condition. 2 books at program + selection of s/w Sell £85 00 ono Tel Bristol 0272 876322

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CMC KEYBOARD with LTK/KTC 4pin connection Offers Tel 0525 370438

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MEMOTECH MTX512 64K computer 3 months old with new word Rom w panc. As new value £390 sell for £325 or swap for BBC B. Cash adjustment if necessary. Tel 0494 29251

SHARP MZ 40K 48K Ram built in VDU and cassette. Lots of programs A and K Basics plus extentions, Pascal and others £250 Tel 02367 24501

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TWO LARGE cartons of 100 computer magazines PCW PC World PCN PCT Your Computer What Micro etc. Very good condition. All offers considered Tel 01 842 8478 Evenings weekends worth over £80

TI99/4A COMPUTER 5 months old + Joysticks + books + cassette cable + parsec + Invaders cartridges + many cassettes games £110 ono or swap for 48K Spectrum + games + joystick wanted still in box with cables and manuals Tel Plymouth (0752) 812655

THREE MEMOTECH MTX cassettes £3 each Memotech book £3 ZX81 graphic rom plus five Graphic Rom cassettes £5 write to 7 Turner Road Norwich NR2 4HD

VIC 1515 Graphic printed unwanted gift All leads inc 2 ink ribbons 1000 sheets of paper Offers £160 Sid 061 633 4887

ORIC 1 48K, £40 software and cassette recorder. Excellent loading due to tape modification. Inc Manual, leads articles etc £115 Tel Bourne (0778) 422164

CURRAH MICRO SPEECH synthesizer (Spectrum) hardly touched + £85 of software inc Flight Simulator Starship Enterprise Androids etc Asking price £40 Phone after 6pm any day Oxford 862191

TWIN 8" disk drives intelligent unit. High capacity complete with cables and manuals £150 ono Tel 0865 750600 for further details

SHARP MZ80K 48K some software also supplied £230 ono 041 942 0117 (Glasgow)

TEXAS TI 99/4A cartridge for sale Household budget management £15 ono. Used about twice. Phone 01 300 4900 after 5 45pm

SHARP MZ80K 48K integral screen and cassette. Database Home Finance Games £336 Tel. 01 908 0808 after 8pm

SHARP MZ80K 48K + Sharp MZ 80/P3 printer + interface lead + several languages Books programs etc £650 ono Prepared to negotiate Tel Langport 250130

FIDELITY SENSORY Chess Challenger 9 for sale. Cost £130 very good condition Sell for £80 ono Tel 0222 841235 and ask for Paul

W M STUART sound board Suit ZX80/81 Spectrum issue three Has three channels sound one noise and two 8-bit I/O ports C/w manual V g c £20 Phone David on Maidstone 26861

LYNX 48K – black/white TV + tape recorder + software + all leads. A whole system every item in excellent condition. Will sell for an amazing £230 ono Tel (0524) 475291 after 6pm now!

TRS 80 dot matrix line printer adjustable tractor feed. Centronics interface complete with cable £100 ono Tel 0865 750600 for further details. Evenings only

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NEC PC8001 with Hi Res monitor and cassette. Genuine bargain only £300 for the high quality computer Mr A Pettitt 2 Caburn View Firle Nr Lewes Sussex Tel 079 159 492

LIGHT PEN and cassette £10 ono Hunchback £3 Oracle's Cave £3 Hobbit £8 ono Centipede £3 All originals phone Crawley (0293) 518480 after 6pm For 48k Spectrum

PRINTER Data Dynamics 390RO Teletype 110 Baud (RS2332) Uses plain paper £80 incl manuals Tel 01 965 1844 (eves)

SHARP MZ700 with printer and tape recorder and some s/w. Sell for £400 or swap for BBC B with disk also coupler for sale £150 ring John on (021) 561 6427

ALPHACOM 42 unused dot matrix printer needs only interface to suit your micro £70 ono 01 390 7318

COMPLETE HOME computer course plus 2 binders immaculate condition cost £24 sell £18 or best original Spectrum s/w reason he has have mastered Basic G Jenkins 1 Greenwood Road Victoria Village Pontypool Gwent

DISK DRIVE 1541 under guarantee with extras £180. Please contact Mr Omar 14 Clarent Road Edinburgh EH9 2BN

SHARP MZ80A as new with games tapes, utilities and books. £350 ono. Tel Worthing (0903) 690370 evenings and weekends.

I HAVE an assortment of computer magazines for sale. Your Computer, PCW, Sinclair User, Sinclair Programs, C&VG, Crash. Approx 50 of them. Very cheap. Will separate. Phone Staines 57086.

TRS 80 MODEL I 16K. Complete and working but slight fault in keyboard £40. Also Apocalypse (BBC), Caesar The Cat (Spectrum), OCP editor — Assembler (Spectrum). Hardly used. Half price. Tel 0363 82544.

SEKOISHA GP100A (AP100A). Dot Matrix printer. Centronics parallel. Dot addressable. New ribbon. Makes way for new FX80. As new but for cracked perspex lid. Was £215. Yours for £99 ono. 061 724 9105.

CURRAH SPEECH Synth £15 + 40 Spectrum s/ware to sell together or separately. Norwich 721376.

TEXAS SOFTWARE Parsec, Alpiner, Munchman, Invaders, Soccer, Attack, Pac-Man, Cat Wars, Donkey Kong, Chess, Video Games 1, Speech Synth, joystick interface. Tel 01-807 7440.

CURRAH MICRO SPEECH £20. Zip-Zap, M Coder, Star Trail, Ant Attack, Pinball Wizard, Timegate £3 each ono. Tel 0905 21871.

ACORNSOFT JOYSTICK £13.00 perfect condition (receipt). Ring Southend 338248.

JVC HRC 3 C format portable VHS recorder. Mint condition £350. Panasonic TC800 8" TV monitor £120 or exchange both for BBC B with DFS. 01 644 9661.

TO SELL over £100 of s/w for £20 inc Mugsy, Manic Miner, Lunar JetMan + the Hobbit. First person to ring gets Valhalla + Atari free (originals). 01 852 2870 after 5pm. David.

T1994 A EXTENDED Basic speech synthesisers terminal emulator, joystick, Chess etc. All cables and manuals. Will accept offers around £150+ write Mark Frost, 21 Mowbray Close, Bromham, Beds.

SHARP MZ 700 cassette recorder + tapes + books. Almost new £170. 04024 44025.

CURRAH MICRO SPEECH for sale £20. Tel Sheffield (0742) 695011.

48K LYNX boxed five months old plus Dungeon Adventure for £130 ono. Phone Malcolm (01) 553 0349 after 6pm.

INTELLVISION 3D Console with voice synth + games Frogger, Space Armada, Football, Lock 'n' Chase, Empire Strikes Back, Star Strikes etc. Phone Ron home no 221 1512, Work no 743 800 ext 466.

48K LYNX s with interface pack, manuals. £130 or swap. Tel 696 5072.

ADVENTURE HELPLINE

Velnors Lair on Spectrum. I cannot cross the crocodile infested river. I have the bathtub, the dead spider, club, tinderbox, torch, mirror, rubies and hankerchief. Jon Binns, 1 Ovenden Road Terrace, Bank Top, Halifax HX3 8PW.

Heroes of Karn on Commodore 64. How do you get past the pirate? How do you get past the serpent? Where is the magic mirror? Jason Doré, 3 Park Drive, Wickford, Essex.

Valhalla on Spectrum. I have mapped Midgard, Asgard and Hell—even the ringways—but I cannot find Ofnir. Does the clue 'Darkness in Midgard' mean that it is in the cave? James Ross, 171 Waverley Drive, Glenrothes, Fife, Scotland.

Hobbit on Commodore 64. How do you escape from the goblin's dungeon? I have the rope, a short strong sword and the curious key. G T Bankes, 26 Eastside Drive, Westhill, Skene, Aberdeenshire.

Rescue from Castle Dread on Vic20. I have got the prisoner but I don't know where to take her. When we leave the castle via the small crack it seems we have gone the wrong way. M J Jarman, RAF124 AFM TRG SQN, RAF Halton, Bucks.

Planet of Death on ZX81. Is there any way past the force field? If so how? Or do I have to face the maze? M. Hasker, 17 Cottarville, Weston Favell, Northampton.

Adventureland on Vic20. How do you get the honey back from the tea? How do you put down the mirror? How do you wake up the dragon? K West, 13 Stanley Avenue, Chesham, Bucks.

The Count on Vic20. I have been badly stuck for months. I keep having the test stake stolen and I can't get it back. Can you tell me how to stop being attacked, find the pep pills and find the coffin. R G Weeder, 34 Greenbank Road, Tunstall, Stoke-on-Trent.

Hobbit on BBC. How do you get past the cellar in the Elvenking's Dungeons? Also how do you get to Gollum from the Goblin's door? D Thomas, 27 Grosvenor Avenue, Barnet, Herts.

Colossal Adventure on Lynx. I have found the vending machine but just haven't been able to buy any batteries. Terry Ireland, 27 Shuttleworth Road, Battersea, London SW11.

Hobbit on Spectrum. How can I get back after killing the dragon and what does the golden key do? Hossan Sheridan, 122 Western Road, Haywards Heath, West Sussex.

Goblin Apple on Spectrum. What use is the gas lever? How do you strike the matches? How do you get to the cliff top? How do you open the safe? Geoff Marshall, 89 Adamsrill Road, Sydenham, London SE26.

Aztec Tomb on Commodore 64. How do I cross the stream at the beginning of the adventure? Joanne Sharp, 8 Upper Woodlands, Perth.

Quest on Spectrum. Where is the long key you need to enter Count Oops? Also what does 'What is needed is a slight change' mean? Edward McSloy, 8 Maple Road, Boston, Lancs.

Mission Impossible on Vic20. Is there a suit for protection when going down the steps to the reactor core? If so, where is it? Paul Wright, 4 West Croft Glen, Waterthorpe, Mosborough, Sheffield.

Valhalla on Spectrum. How do I get out of El Vinos (I've tried jumping)? James Leach, Preybrook Farm, Preywater Road, Wookey Wells, Somerset.

SEE
INTERNATIONAL ADVENTURE CLUB (CLASSIFIED)

Event	Dates	Venue	Admission	Organisers
Apricot and Home Show North	Oct 18-18 10.00am-6.00pm	New Century Hall, New Century House, Corporation Street, Manchester	Free in advance, 60p at door	1B2n Computing Magazine 01-8418384
Computer Games and Systems Retailer Show (trade only)	Oct 17-18 9.00am-6.00pm	Novotel, London W6	Free	Moran Exhibitions 0000 00000
Home Computer Education and Games Fair	Oct 20 10.00am-6.00pm Oct 21 10.00am-6.00pm	Luton College of Higher Education	£1.50 adults, £1.00 children	Home and Kilburn 0000 00011
Electron and BBC Micro User Show	Oct 25-27 10.00am-6.00pm Oct 28 10.00am-4.00pm	Alexandra Palace, London N22	£3.00 adults, £2.00 children	Database Publications 061-456 8383
Show Tech 84	Oct 26-28 10.00am-6.00pm	Bristol Exhibition Centre	£1.50 adults, £1.00 children	Promotions Exhibitions 0272 000461
Computers in Action	Oct 30 10.00am-6.00pm Oct 31 10.00am-6.00pm Nov 1 10.00am-6.00pm	Anderson Centre, Glasgow	Free	Trans Exhibitions 041 304 0000
Mycomp (Thames Valley Personal Computer Exhibition)	Nov 1-3 10.00am-6.00pm Nov 4 11.00am-5.00pm	Falcroft Centre, Slough	£2.00 adults, £1.00 children	Home Events Special Issues 00000 43000
Home Computer Show	Nov 7 2.00pm-6.00pm Nov 8-10 12.30pm-8.00pm Nov 11 10.30am-6.00pm	Royal Dublin Society (Main Hall), Ballsbridge, Centre 6	£2.00 adults, £1.00 children	SDL Exhibitions Dublin 000171
Games Home Computer Fair	Nov 10 10.00am-5.00pm	Pavilion Gardens, Buxton	£1.30 adults, 80p children	Technical Promotions 0000 8174
Home Computer Exhibition	Nov 10 10.00am-5.00pm	Dorral Centre Gallery, Newtown, Powys, Wales	80p	Newtown and District Computer Club 0000 00010
Microelectronics Applications	Nov 10 10.00am-4.00pm	Gawthorpe High School, Burnley, Lancs		Gawthorpe High School 0000 00000
London Micro Market	Nov 10 10.00am-4.00pm Nov 11 10.00am-4.00pm	Wembley Exhibition Centre	£1.50 adults, 75p children	ECC Publications 01-359 0000



Top 10

Atari

1 (1)	StarFlight	Centresoft
2 (2)	Caverns of Khafka	Centresoft
3 (6)	Kaptor	Imagine
4 (7)	Slinky	Centresoft
5 (3)	Zaxxon	Centresoft
6 (–)	Kristy Kaptor	English Software
7 (5)	Carnival Simulator	Atari
8 (3)	Orc Attack	Atari
9 (9)	Computer War	Atari
10 (10)	Kaptor 7	Spillam 3

(Figures compiled by Boots/Websters)

ZX81

1 (5)	Walk the Plank	Macro
2 (8)	Planet Boshe	Macro
3 (6)	Black Crystal	PR
4 (–)	Scramble	Quicksilva
(–)	Mothership	Sinclair
(6)	Flight Simulator	Sinclair
7 (6)	Mosaic Room	59 Trocks
(–)	Hopper	PR
(7)	Espionage Island	Sinclair
10 (–)	Chess	Sinclair

(Figures compiled by Boots/Websters)

Dragon

1 (3)	Quiroset in the Moss	Microdeal
2 (3)	Ring of Darkness	Wintersoft
3 (–)	Dragon Chess	Oasis
4 ( )	Hunchback	Ocean
5 ( )	Chocolate Factory	Micro
( )	Macoscope Ocean Run	Microdeal
7 (–)	Bug Down	Mastertronic
8 (–)	Up Periscope	Beyond
9 (–)	Space Shuttle Simulator	Microdeal
10 ( )	Sprite Magic	Kuma

(Figures compiled by Boots/Websters)

Spectrum

1 (–)	Avalon	(Hewson)
2 (7)	Daley Thompson's Decathlon	(Ocean)
3 ( )	Lords of Midnight	(Beyond)
4 (1)	Matchpoint	(Psion)
5 (6)	Jack and the Beanstalk	(Thor)
6 (–)	Sabre Wulf	(Ultimate)
7 (9)	American Football	(Argus)
8 (3)	Tornado Low Level	(Vortex)
9 (2)	Full Throttle	(Micromega)
10 (8)	Sabre Wulf	(Ultimate)

BBC B

1 (1)	Elite	(Acornsoft)
2 (2)	Fortress	(Pace)
3 ( )	Pala	(Aardvark)
4 (4)	Micro Olympics	(Database)
5 (6)	Mr Wiz and Crab	(Superior)
6 (8)	Wallaby	(Tynesoft)
7 (6)	Ocean	(Micropower)
8 (7)	Aviator	(Acornsoft)
9 (8)	Zalaga	(Micropower)
10 (3)	Deathstar	(Superior)

Vic 20

1 (3)	Flight 015	Craig Communications
2 (1)	Snooker	Visions
3 ( )	Chariot Race	Micro Antics
4 (9)	3D Maze	Mastertronic
5 ( )	Bridge Man	Voyager
6 ( )	Mouse Maze	Voyager
7 (–)	Footprints Freedom	Phoenix
8 (–)	Computer War	Creative Sparks
9 (–)	Maze Gold	Visions
10 (–)	Tank Commander	Creative Sparks

(Figures compiled by Boots/Websters)

Commodore 64

1 (1)	Stratton	League Games
2 ( )	Hunchback	Ocean
3 (5)	Decathlon	Activision
4 (8)	Raven Pilot	Mastertronic
5 (–)	BMX Racers	Mastertronic
(7)	Cilligans Gold	Ocean
7 ( )	Manic Miner	Software Projects
8 ( )	Flight Path 737	Anirog
9 ( )	Squirm	Mastertronic
10 (–)	Snooker	Visions

(Figures compiled by Boots/Websters)

Books

1 ( )	Machine Code Applications	Michael Joseph
2 (–)	Micro Wars on Commodore 64	Century
3 (–)	60 Programs for Commodore 64	Pan
4 ( )	Step by Step Programming BBC Bk 1	Dorling Kindersley
5 (6)	Practical Spectrum Machine Code	Virgin
6 ( )	60 Programs for the Vic 20	Pan
( )	Step by Step Programming Spectrum Bk 1	Dorling Kindersley
8 ( )	Make the most of Micro Drive	Granada
9 (–)	Sinclair User Book of Programs & Games	Penguin
10 (–)	Spectrum Micro Guide	Granada
(7)	Machine Code Sprites & Graphics	Sunshine

(Figures compiled by Boots/Websters)

Book Ends

ACADEMIC

Computer Science on a Micro with BBC Basic is a book about computer programming which is concerned more with first principles than precise details. Thus whilst there are long sections on Loops and Algorithms, the author concerns himself with their abstract nature rather than exactly what keys to press on the keyboard.

There are sections on the design of a computer, intelligent program design, recursion, modes and numbers and sorting. All are clearly written with little padding and some humour. (Put it this way, it's good by computer book standards.) A good book for those with an interest in a more academic approach to computer programming.

Book	*Computer Science*
Price	*£8.95*
Micro	*General (examples BBC Basic)*
Supplier	*Sigma Press, 5 Alton Road, Wilmslow, Cheshire, SK9 5DY*

DICTATOR

Boring as books of games listings intrinsically are, they sell well enough for people to keep producing them. Redeemed, at least by concentrating on an unusual area of computer game, is *Power Plays* for the Commodore 64.

This book consists entirely of well annotated and described strategy games of power and politics. Topics like running newspapers, constructing railways and my favourite aggression in which you get to battle the computer at running the world — it represents the inevitable processes of entropy and you try to maintain order in a variety of collapsing societies. Appolonian and Dionysian rule OK. The really bleak thing about the game is that you are almost completely powerless — you set up the opening parameters but not much else — just watch the screen as dictatorships emerge and the world destroys itself.

The listings in the book are generally very good and for once in a very long while I think what we have here is a listings book that can genuinely be recommended.

Book	*Power Plays*
Price	*£6.95*
Micro	*Commodore 64*
Supplier	*Century, Portland House, 12-13 Greek Street, London W1V 5LE*

This Week

Program	*Type*	*Micro*	*Price*	*Supplier*
Ghouls	Arc	Amstrad	£8.95	Micro Power
European Knowledge	Arc	BBC	£6.95	Micro Power
Felix meets Evil Weevils	Arc	BBC	£6.95	Micro Power
Plutonium Plunder	Arc	BBC	£6.95	Micro Power
Swag	Arc	BBC	£6.95	Micro Power
Toy Bizarre	Arc	Commodore 64	£9.95	Activision
Beamrider	Arc	Commodore 64	£9.99	Activision
Catastrophes	Arc	Commodore 64	£6.95	Minorsoft
Decathlon	Arc	Commodore 64	£9.99	Activision
H.E.R.O	Arc	Commodore 64	£9.99	Activision
Pitfall I	Arc	Commodore 64	£9.95	Activision
Pitfall II	Arc	Commodore 64	£9.99	Activision
River Raid	Arc	Commodore 64	£9.99	Activision
Star Eggs	Arc	Commodore 64	£6.95	Minorsoft
Zenji	Arc	Commodore 64	£9.99	Activision
Rhyme and Reason	Ad	Dragon	£8.95	Wet Paint
European Knowledge	Arc	Electron	£6.95	Micro Power
Felix meets the Evil Weevil	Arc	Electron	£6.95	Micro Power
Swag	Arc	Electron	£6.95	Micro Power
Junior Maths Pack	Ed	Electron	£6.95	Micro Power
Where?	Ed	Electron	£6.95	Micro Power
Which Salt?	Ed	Electron	£6.95	Micro Power
Warp 1	S	Electron	£7.95	Icon
Beamrider	Arc	MSX	£11.99	Activision
Decathlon	Arc	MSX	£11.99	Activision
Pitfall II	Arc	MSX	£11.99	Activision
River Raid	Arc	MSX	£11.99	Activision
Space Shuttle	Arc	MSX	£11.99	Activision
Zenji	Arc	MSX	£11.99	Activision
Beamrider	Arc	Spectrum	£7.99	Activision
Enduro	Arc	Spectrum	£7.99	Activision
H.E.R.O	Arc	Spectrum	£7.99	Activision
Pitfall 2	Arc	Spectrum	£7.99	Activision
River Raid	Arc	Spectrum	£7.99	Activision
Space Shuttle	Arc	Spectrum	£7.99	Activision
Turmoil	Arc	Spectrum	£6.95	Bug Byte
Zenji	Arc	Spectrum	£7.95	Activision
Kung Fu	S	Spectrum	£6.95	Bug Byte
Racing League	S	Spectrum	£6.95	Racing League Software
Machine Code Toolkit	Ut	Spectrum	£5.95	Unit 2
The Designer's Pencil	Ut	Spectrum	£7.95	Activision

Key Ad — adventure/Arc — arcade/Ed — education/ S — strategy-simulation/Ut — utility

This Week is a new section that covers all the new software coming on to the home micro market each week. All suppliers should send details of their new programs to This Week, *Popular Computing Weekly* 12-13 Little Newport Street London WC2R 3LD

New Releases

WORD PLAY

Lingo is a good game it would be a good game even if it wasn't a computer program (which it is), but as a piece of programming it's no better than functional.

Lingo is pretty easy to summarise but difficult to convey in words — at least the fun of playing it is. A sort of *Scrabble* for surrealists drunks and educationalists. You try to make a grammatical and by some stretch of the imagination meaningful sentence from a choice of 12 words selected by the computer. These may be combined with a number of suffices, connecting words and other linguistic flotsam to create the required sentence. The result, if there is one, is likely to be very bizarre indeed and then comes the fun part — defending it as being sensible to the other players.

The game can be played with a time limit of various lengths adding to the sense of insanity. It kept me entertained for hours. Versions for other machines are expected.

Program	*Lingo*
Price	*£12.95*
Micro	*BBCB*
Supplier	*Complete Microcomputer Services 32-38 Osnaburgh Street London NW1 3ND*

DARK AGES

Sorcery is the latest Commodore 64 release from Virgin games, which is definitely trying to raise the quality of its recent releases. It calls itself an arcade adventure, but is really only an arcade game with an adventure plot and a few objects which must be collected. All the action is controlled by a joystick.

Most plots used in games that call themselves adventures or arcade adventures can be reduced to certain common denominators so here are the edited highlights of this one. Dark ages, Evil forces, Necromancer, Evil Demon, Great Sorcerers, up to you, strength and powerful spells, many lands, conquer Stonehenge, and so on. Get the picture?

Anyway, there are quite a few screens of colourful graphics in which you dodge your way past nasty things collect other things and generally figure out what object opens what door, etc, to get through all the screens.

Program	*Sorcery*
Price	*£7.95*
Micro	*Commodore 64*
Supplier	*Virgin Games 2-4 Vernon Yard Portobello Road London W11 2DX*

Pick of the week

ALIEN MOVEMENT

Games Creator is the equivalent, for the Commodore 64, of the *Games Designer* that Quicksilva produced for the Spectrum a while back. *Games Creator* actually works in a fairly similar way but has a wider range of features enabling a larger variety of games to be created.

Almost any aspect of a game you care to consider can be designed using the program. There are very few set conditions. All commands are controlled either by joystick or by typing in a number, etc.

In the first section the alien is chosen using a joystick to move a cursor over the one required, movement can be random or determined to varying degrees. You can then select the rules governing the alien movement — how quickly does it animate, how quick is the explosion, can it go off the edge, how fast does it move?

The basic playing area can be designed using a large scale equivalent of a sprite editor. The end result can look like anything from *Cavern Fighter* to *Jet Set Willy*. Music can be arranged to play throughout the game and for specific events like high scores etc.

There would seem to be little you can't do with the game and for those prepared to make the necessary effort, it is a chance to bring some sense of involvement back into playing with your computer.

Program	*Games Creator*
Price	*£17.95*
Micro	*Commodore 64*
Supplier	*Supersoft Winchester House Canning Road Wealdstone Middlesex HA3 7SJ*

ADDICTIVE

At long last a serious commercial program for the *QL*.

Serious in the sense that it has been produced by a professional company, written in machine-code and to some extent gets to grips with the possibilities of that enigmatic machine.

Zkul is an adventure from Talent Software the Glasgow-based company that began recently with some well-received material for the Commodore and Spectrum.

Although they are also producing a version of their adventure *West* for the QL, *Zkul* is their first program to be launched on the machine.

Zkul is a text-only adventure of great difficulty — definitely not for beginners. It has, as you would expect, an enormous vocabulary of several hundred words and a vast number of locations. Not only that, but the locations are fully described in a couple of paragraphs or more. No major evidence of spelling mistakes either.

The plot is pretty much your classic adventure stuff — you are seeking ancient dwarf treasure guarded (it is believed) by a powerful wizard named Taradon. You begin the adventure by a river somewhere near the ancient dwelling place of the elves — you must find the treasure and bring it to a house in the forest.

There are some features I've not often, or perhaps ever, seen on other adventures — if you save a location you can also record a screen full of information to be displayed the first time you reload it eg, locations, complex directions, time of day, what you are going to have for tea, etc.

In some locations the program will sense that you have reached a particular tricky problem and offer you hints in return for points if you wish. This is instead of a *Help* command — no other form of advice is available.

How many QL-owning adventurers there are out there? I don't know, but if there are some they'll certainly find several hours of confusion irritation and addiction here.

Program	*Zkul*
Price	*£14.95*
Micro	*QL*
Supplier	*Talent Software Curran Building 101 St James Road Glasgow G4 0NS*

ANNOYING

Temptation has released an adventure game which it describes as 'the most complex and involving adventure available'. There are quite a lot of them at the moment.

The Journey is a 'real time text adventure with graphics' in which you journey through the lands of the BLACK WARLOCK

(this distinguishes him from the black warlock who is slightly less dangerous being in lower case)

There are a number of other characters in the adventure who wander about a bit like Thorn and may, sometimes, be helpful. The text handling is basically Verb-Noun combinations and the graphics are fairly simple, but there is quite a lot to it in terms of plot and it does have a certain atmosphere. Really my only complaint concerns essentially trivial things — the screen layout is unexciting and why the boring old Spectrum character set? A bit of time redesigning the screen layout and a nice new font and this could be a cult hit.

Program *The Journey*
Price *£7.95*
Micro *Spectrum*
Supplier *Temptation*
27 Cinque Ports Street
Rye
East Sussex.

BORING

I think that multi screen *Manic Miner* style games where you dodge and climb things are getting a little boring, possibly even very boring *Cave Fighter* is such a game albeit with the added feature of a chance to blow a few of the aliens away

There are 31 different caves, a little man who looks quite a lot like Miner Willy, ropes to climb, things that bounce up and down, things to jump and deadly spitting flowers

There isn't actually anything wrong with the game at all in that it meets the current criteria that represent good programming', but oh boy it's boring



Program *Cave Fighter*
Price *£6.99*
Micro *Commodore 64*
Supplier *Bubble Bus Software*
87 High Street
Tonbridge
Kent TN9 1RX

ZAP AWAY

Ancipital is the latest from the near legendary as makes no difference Jeff Minter. It involves above all, killing endless waves of different things with an endless variety of unlikely bullets — bananas and cassette boxes amongst them.

The ancipital is a sort of half-man, half-goat mutant that has to find its way through a number of chambers (100 in all) rendering each one harmless

The passage from one chamber to another is achieved either by blasting it, finding the right camel (yes, they've not been forgotten, folks) or landing on it.

This and a couple of other refinements bring some sort of strategy to the game but basically it's a treat for zappers everywhere.

Program *Ancipital*
Price *£7.50*
Micro *Commodore 64*
Supplier *Llamasoft*
49 Mount Pleasant
Tadley
Hants
RG26 6BN

GIANT ANTS

After nearly a year the sublime *Ant Attack* has been converted for the Commodore 64 The program uses slightly different techniques to generate the 3D walls that make up the walled city of Antescher but the end result captures the wonderfully gothic atmosphere of the original. Only one major difference here, the walls are given a smooth appearance rather than the dotted effect on the Spectrum — I think it might be marginally less effective.

The idea of the game is to rescue a member of the opposite sex imprisoned within the walls of the city — staked out on top of one of the walls in fact This simple objective requires your little figure making a mad dash through the city jumping walls and dodging the hordes of nasty giant black ants

Since much of the city is 'invisible' at any one moment, being 'behind' a wall you often have to move your angle on the city — this represents your viewpoint.

It's compulsive, very otherworldly, non-sexist and it doesn't look like any other game.

Program *Ant Attack*
Price *£7.99*
Micro *Commodore 64*
Supplier *Quicksilva*
PO Box 6
Wimborne
Dorset BH21 7PY

Q HERE

Hubert is yet another version of *Q Bert* for the Spectrum. Why people bother to produce endless versions of the same thing has always escaped me.

Once again Q Bert (OK this time he's called Hubert) jumps up and down the pyramid turning the blocks different colours

There's nothing actually wrong with *Hubert* but it isn't as good as some of the other versions of the game It does have one redeeming feature, though, it's cheap

Program *Hubert*
Price *£4.95*
Micro *Spectrum*
Supplier *Turtle Software*
Wychwood
40 School Road
Finstock
Oxford OX7 3DJ

HECTIC

Abbex is a Spectrum software house that has been around for a while now and with *All or Nothing* they may get back into the charts. It is a sort of strategy game version of *Ant Attack* — lacking a lot of the atmosphere and slickness but using the same edge-on 3D screen.

The idea is that you are parachuted into a secret factory to discover the whereabouts of secret files As you move about there are a number of useful things you may discover including guards who can be interrogated.

With charges to be laid and dogs and guards charging madly around it's a fairly hectic game The bottom of the screen shows you what you have already collected and will flash the appropriate object when it is in use Features bribery, bluff and last but by no means least, violence as you hunt the enemy camp What more could you want?

Program *All or Nothing*
Price *£5.95*
Micro *Spectrum*
Supplier *Abbex*
Tavistock House
34-36 Bromham Road
Bedford
MK 40 2QD

Compiled by Graham Taylor

New Releases is designed to let people know what software is coming on the market. If you have a new game or utility which you are about to release send a copy and accompanying details to New Releases, *Popular Computing Weekly*, 12-13 Little Newport Street London WC2R 3LD

Lack of attitude

It has been a few months since I wrote my first Ziggurat on the prejudiced attitude, or lack of attitude, of software writers towards women. Earlier this year an advertisement appeared from Bug Byte warning of the approach of 'the first major piece of software for the female market'. Intrigued by that I decided to visit the company to find out more about it. There was only a niggling worry, that perhaps the program and turned out to be, surely it couldn't ... I must be wrong... You guessed it, it was the *Computer Cookbook* by Ian Hoare.

However, the interview did turn out to be an interesting discussion with John Phillips, responsible for the marketing side of the company.

"I feel that attempts to capture the female market so far have been clumsy and condescending. It is inherently more sexist to say that this game is aimed at women. But on the other hand, how do you stimulate an underdeveloped side of the market without aiming straight at it?" So how did he feel about their own approach to marketing the cookbook? Surely it was the content of the product as much as the advertising approach that determined whether it was stimulating or condescending. "It was the idea of our advertising agency to promote the cookbook that way, with the aim of hitting the biggest target market. But we weren't particularly happy about it."

Indeed, later handouts changed the wording to 'ideal for any member of the family, particularly those who spend a lot of time in the kitchen'. This raises the interesting question of how the professional advertisers see the issue.

So what about Bug Byte's more standard arcade games — what scope is there for making them less biased, without necessarily 'aiming them at women'. "I accept that the computer games market is incredibly sexist, even though the product is in theory not sexually orientated. But that presents a problem for us: we have to accept that our sales rely on teenage males to a very great extent. If I started giving the characters female names to encourage girls and our existing market dropped off, my head would roll."

As a contrast to Bug Byte I decided to take a look at the other side of the computer games industry, ie adventure games. I chose Level 9 to visit because they appear to be one of the few companies to have female characters in central roles.

"We agree that female characters may be hard to sell to the young males that dominate the arcade market, although there is no reason why they cannot offer a choice of sex," Pete Austin said. "I think at school girls are put off computers because the boys are encouraged to be more pushy and thus tend to take over computer classes, together with the fact that girls are encouraged towards art subjects."

Margaret Austin continued, "I think what you need are women running software companies. Level 9 would not be against taking on female programmers if we could find them. We do have a women, Joan Lamb, programming the graphics for our new game, *Eric The Viking*. There was also that Gassard who designed *Lords of Time*."

Regarding his own programs Pete had the following to say. "I feel that it would be stupid to alienate part of the audience for my games by resorting to insulting images of women. I was very conscious of the problem of stereotyping in most dungeon and dragon type adventures. Even in my own early games there are stereotypes that I find embarassing in retrospect.

"The reason for choosing a female 'lead' in *Snowball* was a reaction to this stereotyping and to the male domination of the real USA/USSR space race even though no particularly 'male' skills are required to be an astronaut. There also seems to be an unspoken assumption that incidental characters should, by default, be men, so I have made them women as well."

So where does this leave us? Is there really scope for changing the sort of software being written? There are obviously differences between the two types of game. Adventures perhaps have more scope for imaginative and sensitive dealing of complex issues than arcade games. However there have been very successful arcade games, *Ant Attack* in particular, that have overcome, and even made a spoof of, sexual stereotyping.

So it would seem that the idea that 'our market dictates our product' is an unacceptable oversimplification. The attitudes of the programmer have as much to do with it as anything.

Jane Stoneham

Lowest form

Puzzle No 128

One of the most amusing cryptograms of recent years has been the following: *EVE/DID = TALKTALKTALK*

That is by substituting digits for letters (a different letter indicating a different digit) an arithmetical expression can be formed.

In the example quoted the fraction — which should be reduced to its lowest form — is evaluated to obtain a decimal with four repeating digits.

Can you find its numeric value?

Solution to Puzzle No 123

They had sold 118 of the hard back edition at £5.89 per copy and 274 copies of the paper back at £1.07. This makes a total of one thousand pounds.

The program assigns a number for the total sales of the hardback edition, and evaluates the revenue that would be raised. This is deducted from the total amount, and the remainder is equal to the sales of the paperback version. This is divided by the price of each copy to find the number sold, which must be integral.

```
10 LET X = 1 20 LET Y = (100000 − 589 * X)/107 30 IF Y = INT(Y) THEN PRINT X, Y 40 LET X = X + 1 50 GOTO 20
```

Of the answers printed, all but two contain negative values which are clearly not possible. From the two sets of values that remain, one has to be eliminated as it gives the number of hardback issues as 11, and the problem states that more than this have been sold.

Winner of Puzzle No 123

The winner is: Paul Cheetham, Pine Grove Hawthorn, Clithoro, Lancs., who receives £10

Rules

If the puzzle prize can be sensibly solved using a computer, then the winner will have included a listing of the program used to find the correct answer. The closing date for entries to Puzzle No 128 is October 28.

The Hackers






ADVERTISEMENT
THE PIMAN, PENCIL-TACHE NEATLY APPLIED, TRIES OUT HIS SALES PATTER ON LADY CLAIR..
NEW WHEELS, JOHN?
G'ROFF! I'M NOT JOHN, AND MY HEELS NEED MENDING!
PIMAN'S USED CAR BARGAINS
NAH, JOHN NAH NOT 'EELS WHEELS AN AS FOR WEARIN' DOWN... THAT'S WHAT I'VE GOT TO DO TO YOU, SEE, JOHN?
BUT YOU'RE TRYING TO SELL ME MORRIS! YOUR OLD FRIEND, MORRIS' IS THAT A THING TO DO?
NO TIME FOR SCRUPLES WHEN YOU GOTTA EARN A CRUST, JOHN. ALL THESE COMPUTER PIRATES IS CRIPPLIN' ME!
A SNIP!
HUH! THIS IS AS BAD AS PIRACY! AND IF YOU CALL ME 'JOHN' AGAIN, I'LL PUSH YOU AND YOUR PRETEND MOUSTACHE, DOWN A DRAIN!
LISSEN J- ER LIDY, THIS CAR IS VERY RELIABLE AN' IT'S ONLY DRAWBACK IS IT TENDS TO GET SET UPON IN MULTI-STOREY CARPARKS BY CRAZED ALIEN BIKERS.*
HMM, ANY CHANCE OF A TEST-DRIVE?
IF YOU LIKE!
GOOD I'M SURE I CAN KNOCK YOU DOWN A BIT!
NO YOU CAN'T, LIDY, 'COS I'LL BE IN THE CAR WIV YER!
* SEE AUTOMATA'S GREAT FAVOURITE, 'MORRIS MEETS THE BIKERS' - A SNIP AT £6' SO SNIP OUT ORDER FORM BELOW! (ADVT)
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IN THE END, CLAIR BUYS MORRIS AND DRIVES HIM HOME
I'VE PUT YOU ON HIS ACCOUNT, SO HE'LL HAVE TO PAY HIMSELF! PITY, WHEN YOU THINK HE'S FORGOTTEN WHAT DAY IT IS!
PARP PARP
SKREEEEK
THAT EVENING. THE PIMAN COMES IN FROM WORK
PARAW! ANOTHER DAY, ANOTHER DOLLAR! WHERE'S THAT LIGHT SWITCH?
HAPPY BIRTHDAY PIMAN!
SURPRISE!
PARP PARP
AAIIEEE!
IS 'E DEAD?
NO, HE'S ONLY FAINTED WHEN YOU GET OLD, YOU GO LIKE THAT.
MUCH LATER, AS THE PARTY SWINGS ON, THE PIMAN BECOMES THOUGHTFUL
WOSS OOP?
TWO! MY GOD, I'M TWO. AGE DOES CREEP UP ON ONE!
DON'T BE DAFT! LIFE'S JOOS BEGOON! AN' ITHER COOM MEL & CHRISTIAN OO WANT TO TURN YOUR CAR SALESMAN REN-TEEN INTO AN NEW GAME!
PIMAN' A WORD IN YOUR EAR
AND SO "NEW WHEELS JOHN" IS BORN. HAPPY BIRTHDAY, PIMAN!!
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